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ABSTRACT

This paper, which describes a computerized appointment scheduling system for individualized instruction from the point of view of the teachers and students who will use it, also includes more technical data for those readers who are familiar with the BASIC language. A guide to the logic, possible modifications, and a program listing are included, as well as a discussion of some of the less common BASIC statements used in the system to assist in various commands. The opening user's guide is intended to help those not necessarily familiar with BASIC to learn how to use the system, while the more technical programmer's guide which follows includes file structure, new semester/new teacher user program changes, other modifications and conversion (transportability) guidelines, code description, variables used, and program listing. (Author/CMV)

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The Illinois Series on Educational Application of Computers

Documentation--A Computerized Instructional Resource Management System

Henry Lockard and John Cox

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J. Richard Dennis

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To the reader,

This is one of a series of documents prepared as resources for the preservice and inservice training of teachers. The general theme of all items in this series is "teaching with or about computers". The booklets are the collective work of a variety of staff and students (both present and former) of the College of Education, University of Illinois at Urbana-Champaign. The project generously was supported between 1977 and 1979 by a grant from the EXXON Education Foundation. All responsibility for the content of these documents rests with the authors and does not reflect necessarily the views of the EXXON Foundation. It was my extreme pleasure to direct this effort throughout.

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INTRODUCTION

In addition to providing remedial and enrichment instruction, the computer can assist teachers with such administrative tasks as inventory or appointment scheduling. In December, 1978, Henry Lockard, working with the University of Illinois Institute of Aviation's individualized instruction teachers, developed an appointment scheduling system called MYAPP, on the University's Cyber computer system.

Under an individualized instruction model, groups may gather much less frequently. On a large school campus, a teacher working in this mode may not see particular students regularly. Hence, a need arises for a medium to control reservations with the various resources of the course. This system is an example of such a medium.

While the size of the program might be too large for most micro-computers, the BASIC language coding easily can be separated into many smaller programs each of which contains only a few options. Such changes would make the system available to any micro-computer that supports program CHAIN's.

This paper discusses the program from the point of view of the teachers and students who will use it and includes more technical data for those readers who are familiar with the BASIC language. A guide to the logic, possible modifications, and a program listing are included as well as a discussion of some of the less common BASIC statements used in the program to assist in converting the system to other computers which may not support various commands. The first part of the paper, the USER'S GUIDE is intended to help those not necessarily familiar with BASIC to learn how to use the system. More technical data is included in the PROGRAMMER'S GUIDE.

USER'S GUIDE

This section of the manual is intended for the teacher and students who will be using the appointment scheduling program. No knowledge of the BASIC language is necessary, but it is assumed that the user is familiar with the steps needed to power up the computer, load and run BASIC programs, check on the existence of data and program files (and create them if necessary), and any steps required to gain access to the computer and respond to its data requests.

Signing In

When the student or teacher wishes to use the appointment programs, the first step is to sign in so the computer can determine if he/she is a valid user. The teacher has a special password (see PROGRAMMER'S GUIDE to change password) which must be entered correctly before access to the appointment data is permitted. Students must enter their name or ID number when requested and are given access to their appointments only if the following conditions are satisfied:

1. The name or ID number must match exactly the data entered for an enrolled student. The teacher must initialize the program at the start of each semester, entering the names and ID numbers before students can use the system.
2. The date must be within the range of days specified by the teacher. This information is also entered when the program is initialized, but can be changed later in the semester if the teacher wishes.

If the student is not authorized to use the program, a message is printed to explain the reason and no appointments can be scheduled, viewed, or changed.

Initialization

Before the system can be used, someone familiar with file commands must create the data file which will store all appointment information for the program between uses. The name currently used for this file is AVIDAT2, but this can be changed easily by modifying one line of the program. The file size depends on the number of students and appointment types being used (see the PROGRAMMER'S GUIDE for more details).

The first time the teacher attempts to use the program, the data file will be empty and the teacher will be required to initialize it before appointments can be scheduled. The following information is necessary for the teacher to complete this process:

1. Student names and ID numbers (must be entered alphabetically).
2. Names of desired appointment types (The final type of appointment is slightly different from the others. It is assumed to be available at a number of different locations and to involve a number of different activities).
3. Number of people permitted to make simultaneous appointments of the same type.
4. Days of the week and hours when each appointment type is to be available.
5. Date of the first Monday of the semester (optionally, the teacher can enter a final date. The computer assumes the Friday of the seventeenth week of the semester unless instructed otherwise).
6. (Optional) Dates of days which are unavailable for any appointments such as holidays or dates and times of any cancellations of normally valid appointment types (in case the teacher must leave for meetings, etc.)

Before the data file is initialized, students signing in receive the message:

PROGRAM NOT OPEN TO STUDENTS
ENTER PASSWORD OR TYPE BYE TO EXIT PROGRAM

Since students do not know the password, they will have to type BYE and the program will be terminated. The teacher should have all the above data ready to enter and should type the password. The computer then will inform the teacher that the program must be initialized and will give the teacher two options:

1)INITIALIZE THE PROGRAM
2)EXIT THE PROGRAM

The teacher should choose option 1 and enter the initialization data when the computer requests it. The computer lists the data required for initialization and asks:

ARE YOU READY TO INITIALIZE THE PROGRAM(Y/N)?

The teacher should type Y and the computer will begin requesting the data.

The first information required by the program is the list of ID numbers and student names which should be in alphabetical order by names. The format for entering names is:

Last Name (space) First Name (space) Middle Initial

Each name must be unique and the middle initial can be omitted if it is not needed to insure that no other name is identical. No punctuation should be used in the name, for example: COX JOHN or

COX JOHN P should be used, not COX, JOHN P. since punctuation should not be included. The computer asks for the student's ID number before requesting the name, but the list should be entered in alphabetical order, not arranged in order of ascending ID numbers.

The teacher is given an opportunity to correct each ID number and name as they are entered, so the teacher should check the entry each time and watch for typographical errors. The students must know exactly what the teacher entered as their name and ID number in order to use the program. After the last name has been entered, the teacher should type a zero when the computer asks for the next ID number.

A sample run is shown below. Underlined material is entered by the teacher (a RETURN or end-of-line character must end each input.) Other upper case material is printed by the computer on the system terminal. Lower case material is commentary to explain what the teacher is doing.

```
ENTER ID NUMBER. WHEN FINISHED ENTER A ZERO.? 12225
IS 12225 CORRECT(Y/N)? Y
(teacher should type N if the data was entered incorrectly)
ENTER NAME? ADAMS JOHN
IS ADAMS JOHN CORRECT(Y/N)? Y
.
.
.
(teacher continues entering names alphabetically until the list is
finished)
ENTER ID NUMBER. WHEN FINISHED ENTER A ZERO.? 0
(teacher has finished entering student names and ID numbers)
```

If the teacher's list of names is longer than the program can accept, the computer will print a message to inform the teacher that the class is filled. Additional names will be accepted up to a maximum number set by the programmer. The teacher should be sure that this maximum number is large enough for the class before attempting to initialize the program (see the PROGRAMMER'S GUIDE for details on changing the list size). The teacher also will be permitted to enter names of students who later add the course as the semester progresses.

Once the names and ID numbers have been entered, the computer will ask for the date of the first Monday of the semester. The computer will calculate the final date as the Friday of the seventeenth week of the semester. The teacher can alter this final date, if necessary, to an earlier date. The system now assumes that a semester starts in January (1), June (6), or August (8). This can be changed as can the length of the semester (currently set at 17 weeks). See the PROGRAMMER'S GUIDE for details. A sample run is shown below:

```
STARTING MONTH MUST BE ONE OF THE FOLLOWING: 1, 6 OR 8.
ENTER NUMBER(1, 6 OR 8) OF THE MONTH OF THE STARTING DATE? 8
ENTER THE NUMBER OF THE FIRST MONDAY (1-31)? 27

THE DATES CURRENTLY IN EFFECT ARE STARTING: 08/27
AND FINAL: 12/21
TODAY'S DATE IS 08/24
DO YOU WISH TO ENTER AN EARLIER FINAL DATE(Y/N)? Y

THE FINAL DATE MUST BE WITHIN 17 WEEKS OF THE STARTING DATE
(WHICH IS 08/27). THE CURRENT FINAL DATE IS 12/21
PLEASE ENTER DESIRED FINAL DATE IN SAME FORMAT AS ABOVE DATES
(MM/DD) BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY
(EG JANUARY 9TH WOULD BE 01/09)? 12/20
NEW FINAL DATE IS 12/20
```

The teacher will be permitted to change the final date at a later time if necessary, but it must always be within the seventeen week period following the starting date. The teacher can also change the starting date, but this results in loss of any appointments students have made and loss of any cancellation dates which have been entered.

The next information to be initialized is the names of appointments to be used. The program includes a sample group of names, but the teacher is permitted to change any of the names or to exclude some types by changing the name to UNAVAILABLE. (To change the number of possible appointment types or the sample names, see the information in the PROGRAMMER'S GUIDE.) If the teacher decides to change one of the names in the sample group of appointments, the new name must begin with the word APPOINTMENT.

The final appointment type includes various activities which can be pursued by a student at a given location. Only one appointment for a given activity can be scheduled by any student at a specified time. If the teacher changes the name of this appointment type, the names of the various activities can also be changed, but they may not be excluded by changing the name to UNAVAILABLE as is possible with other appointment types. The new names for the activities do not have to begin with the word APPOINTMENT. (To change the number of possible activities or their names, see the information in the PROGRAMMER'S GUIDE.) A sample run is shown below:

```
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) APPOINTMENT WITH COUNSELOR
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR VIDEOTAPE
THE LAST APPOINTMENT TYPE HAS THE FOLLOWING VARIETIES
```

```
1) VIEW MOVIE
2) VIEW VIDEOTAPE
DO YOU WISH TO RETAIN ALL OF THESE NAMES(Y/N)?  N
(teacher wishes to change names or exclude appointment types)
IF AN APPOINTMENT TYPE IS NOT TO BE USED THIS SEMESTER THEN
PLEASE NAME IT 'UNAVAILABLE', OTHERWISE BEGIN ALL NAMES WITH
THE WORD 'APPOINTMENT'.
CURRENT NAME IS APPOINTMENT WITH COUNSELOR
DO YOU WISH TO RETAIN IT(Y/N)?  N
(teacher wishes to exclude this appointment type)
ENTER NEW NAME?  UNAVAILABLE
NEW NAME IS UNAVAILABLE
IS THAT CORRECT(Y/N)?  Y
CURRENT NAME IS APPOINTMENT WITH INSTRUCTOR
DO YOU WISH TO RETAIN IT(Y/N)?  Y
CURRENT NAME IS APPOINTMENT FOR A TEST
DO YOU WISH TO RETAIN IT(Y/N)?  Y
CURRENT NAME IS APPOINTMENT WITH TUTOR
DO YOU WISH TO RETAIN IT(Y/N)?  Y
THERE ARE 2 VARIETIES FOR THE LAST APPOINTMENT TYPE AND
RENAMING THE TYPE MAY REQUIRE RENAMING THE VARIETIES ALSO.
CURRENT NAME IS APPOINTMENT TO VIEW MOVIE OR VIDEOTAPE
DO YOU WISH TO RETAIN THAT NAME(Y/N)?  N
(teacher wants to change last type of appointment)
ENTER NEW NAME?  APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
NEW NAME IS APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
IS THAT CORRECT(Y/N)?  Y
THE VARIETIES FOR THIS APPOINTMENT TYPE ARE
VIEW MOVIE
DO YOU WISH TO RETAIN NAME(Y/N)?  Y
VIEW VIDEOTAPE
DO YOU WISH TO RETAIN NAME(Y/N)?  N
ENTER NEW NAME?  VIEW FILMSTRIP
IS VIEW FILMSTRIP CORRECT(Y/N)?  Y
(teacher changes activity name to match the name of the
appointment type)
```

The names of appointment types can be changed again later in the semester if the teacher no longer needs the same kind of help for scheduling students or if new needs arise. The places at which the final type of appointment are located (such as STATION 1 or BLAIR HALL, etc.) can be included in the program--see the PROGRAMMER'S GUIDE for details.

After the names of the appointments have been approved, the teacher must enter the number of students who will be permitted to schedule the same type of appointment at any time. Any appointent type which was excluded by changing its name to UNAVAILABLE is assumed to have a zero already entered, so the teacher only has to enter the number of students for the remaining types.

The computer will print the names of the appointment types and the teacher should choose one of the types and enter the number of students. If the teacher fails to initialize each available type or enters a zero for the number of students for one of the types, the computer will assume that the teacher intends to exclude that type of appointment and students will be unable to schedule that type. The teacher can change the permissible number of students at a later time if necessary. A sample run is shown below:

```
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
ENTER THE NUMBER OF THE APPOINTMENT TYPE WHICH
CORRESPONDS TO THE ONE WHOSE NUMBER OF PEOPLE YOU
WISH TO ENTER. ENTER A ZERO WHEN FINISHED.? 2
(teacher does not need to enter the number of students for
unavailable appointment types)
ENTER THE NUMBER OF PEOPLE WHO MAY MAKE AN
APPOINTMENT AT THE SAME TIME.? 2
THE NUMBER ALLOWED AT ONE TIME IS 2
IS THAT CORRECT(Y/N)? Y
 .
 .
 .
(teacher continues entering the number of students for each
available appointment type)
```

The next step in the initialization process is to establish the times for which each appointment type is to be available to students. For each available appointment type, the days of the week must be entered, followed by the hours, for which students may schedule an appointment. Only those days and times which are entered will be open and the teacher has the option of changing or cancelling specific dates or times whenever necessary.

Weekend appointments are not permitted in the current version of the program and only those times or options listed can be scheduled. (These features can be changed if necessary--see the PROGRAMMER'S GUIDE for details.) A sample run is shown below:

```
FOR APPOINTMENT WITH INSTRUCTOR
(the days and times are requested only for those appointment types
which are available)
ENTER NUMBER OF A WEEKDAY WHICH IS TO BE OPEN FOR APPOINT-
MENTS.  (MONDAY = 1, . . ., FRIDAY = 5). ENTER ZERO WHEN FINISHED
? 1
YOU HAVE CHOSEN A MONDAY
```

```
IS THAT CORRECT(Y/N)?  Y

FOLLOWING ARE THE HOURS ON WHICH APPOINTMENTS MAY BE MADE
ALONG WITH 3 CODES FOR YOUR CONVENIENCE

1) 8:00 (2)  8:30 (3) 9:00 (4) 9:30 (5) 10:00 (6) 10:30
7) 11:00 (8) 11:30 (9)  1:00 (10) 1:30 (11) 2:00 (12) 2:30
13) 3:00 (14) 3:30 (15) 4:00 (16)  4:30 (17) 5:00 (18) 5:30
19) 6:00 (20) 6:30 (21) 7:00 (22) 7:30 (23)  8:00
24) 8 TO 4 ON THE HOUR (25) 8 TO 8 ON THE HOUR
26)  2 HOUR APPOINTMENTS BEINNING 8, 10, 1, 3
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
?  5
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
?  7
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
?  11
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
?  13
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
?  0
(teacher is finished specifying times for Monday appointments with
instructor)

THIS IS THE AVAILABILITY DATA NOW RECORDED


AN 'X' WILL BE DISPLAYED UNDER EVERY TIME THAT IS
AVAILABLE FOR APPOINTMENTS.
   8 830 9 930 10 1030 11 1130 1 130 2 230 3 330 4 430 5 530 6 630
7 730 8
M              X       X              X     X
IS THIS INFORMATION CORRECT(Y/N)?  Y
FOR APPOINTMENT WITH INSTRUCTOR
ENTER NUMBER OF A WEEKDAY WHICH IS TO BE OPEN FOR APPOINT-
MENTS.  (MONDAY = 1, . . ., FRIDAY = 5). ENTER ZERO WHEN FINISHED.
?  2
YOU HAVE CHOSEN A TUESDAY
IS THAT CORRECT(Y/N)?  Y

FOLLOWING ARE THE HOURS ON WHICH APPOINTMENTS MAY BE MADE
ALONG WITH 3 CODES FOR YOUR CONVENIENCE

1) 8:00 (2) 8:30 (3) 9:00 (4) 9:30 (5) 10:00 (6)  10:30
7) 11:00 (8) 11:30 (9) 1:00 (10) 1:30 (11) 2:00 (12)  2:30
13) 3:00 (14) 3:30 (15) 4:00 (16) 4:30 (17) 5:00 (18)  5:30
19) 6:00 (20) 6:30 (21) 7:00 (22) 7:30 (23) 8:00
```

```
24)  0 TO 4 ON THE HOUR (25) 8 TO 8 ON THE HOUR
26) 2 HOUR APPOINTMENTS BEGINNING 8, 10, 1, 3
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
? 24
ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH
APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED
? 0

THIS IS THE AVAILABILITY DATA NOW RECORDED


AN 'X' WILL BE DISPLAYED UNDER EVERY TIME THAT IS
AVAILABLE FOR APPOINTMENTS
   8 830 9 930 10 1030 11 1130 1 130 2 230 3 330 4 430 5 530 6 630
7   730 8
TU X     X     X       X       X     X     X     X
IS THIS INFORMATION CORRECT(Y/N)? Y
(teacher would continue entering data for each weekday on which
this appointment type is desired)
 .
 .
 .
FOR APPOINTMENT WITH INSTRUCTOR
ENTER NUMBER OF A WEEKDAY WHICH IS TO BE OPEN FOR APPOINT-
MENTS. (MONDAY = 1,  . . ., FRIDAY = 5). ENTER ZERO WHEN FINISHED
? 0
(when finished with this type of appointment, the teacher types 0
and the computer will continue with the next available type of
appointment)
```

This completes the initialization process. The computer will ask the teacher if he/she wishes to enter any dates for which no appointments of any type are to be permitted. The computer prints:

```
DO YOU WISH TO ENTER ANY SUCH DATES(Y/N)?
```

and the teacher should answer Y and specify the dates of any holidays or otherwise unavailable days. If the teacher enters a date which is not a weekday between the current starting and final dates previously specified, the computer will inform the teacher of the error. More dates can be added to this list later in the semester, so the teacher can answer N to this question and provide this information at another time.

The teacher also is given an opportunity to cancel specific dates and times for a given appointment type. These cancellations also can be done at any time during the semester, so the teacher need not consider them at initialization. This permits some

flexibility in the appointment scheduling, since the program will notify students of cancellations and the teacher need not contact them. The computer also will provide a list of cancelled appointments for the teacher, if requested, so that the teacher can cancel appointments in an emergency and leave word for the students at the office.

A sample run of these features is shown below:

```
YOU MAY NOW USE THE OPTION OF ENTERING THE DATES OF ANY
DAYS WHICH ARE UNAVAILABLE FOR ANY APPOINTMENTS.
DO YOU WISH TO ENTER ANY SUCH DATES(Y/N)? Y

DO YOU WISH TO ADD A NEW UNAVAILABLE DATE(Y/N)? Y
ENTER DATE AS MM/DD. BE SURE TO USE TWO DIGITS FOR BOTH
MONTH AND DAY (EG. JANUARY 9TH WOULD BE 01/09). ? 11/22
(teacher enters holidays or other unavailable dates)
AFTER THE ADDITION

FOLLOWING ARE DATES UNAVAILABLE FOR ANY APPOINTMENT
1) 11/22
DO YOU WISH TO ADD A NEW UNAVAILABLE DATE(Y/N)? N
(teacher is finished for now, but more dates can be added later)

AT THIS TIME YOU MAY ENTER THE DATES AND TIMES OF ANY
SPECIFIC CANCELLATIONS OF NORMALLY AVAILABLE TIMES FOR
ANY OF THE APPOINTMENT TYPES.
DO YOU WISH TO ENTER ANY SUCH CANCELLATIONS(Y/N)
? Y
DO YOU WISH TO ENTER ANY CANCELLATION DATES
FOR APPOINTMENT WITH INSTRUCTOR
ENTER Y OR N? Y
(the computer only requests this data for available appointment
types)

DO YOU WISH TO ADD A NEW CANCELLATION DATE(Y/N)? Y
ENTER DATE TO BE CANCELLED AS MM/DD. BE SURE TO USE TWO
DIGITS FOR BOTH MONTH AND DAY (EG. JANUARY 9TH IS 01/09)
? 08/30
FOLLOWING ARE THE NUMBERS WHICH INDICATE WHICH HOURS ARE
TO BE CANCELLED
1) ALL HOURS (8 AM TO 9 PM)
2) ALL MORNING (8 TO 12)
3) ALL AFTERNOON (1 TO 5)
4) ALL EVENING (5 TO 9)
ENTER THE APPROPRIATE NUMBER? 3
(teacher has cancelled appointments with instructor on the
afternoon of Aug. 30)
DO YOU WISH TO ADD A NEW CANCELLATION DATE(Y/N)? N

FOR APPOINTMENT WITH INSTRUCTOR THE FOLLOWING
CANCELLATIONS HAVE BEEN ENTERED
```

```
1) 08/30 FOR THE AFTERNOON HOURS (1 TO 5)
IS THE INFORMATION CORRECT(Y/N)? Y
DO YOU WISH TO ENTER ANY CANCELLATION DATES
FOR APPOINTMENT FOR A TEST
  .
  .
  .
```

(teacher continues to specify any cancellations which are known at the time and can add more later)

If the options for which hours to cancel are not satisfactory, they can be changed (see PROGRAMMER'S GUIDE for details).

Scheduling Appointments

Once the program has been initialized and the starting date has passed, those students who have been enrolled by the teacher will be able to sign on and schedule, change, or view their own appointments. Messages can be sent by the teacher to be printed on the student's terminal whenever he/she signs on and the system automatically will notify students of any appointments which have been cancelled by the teacher. Therefore, students should be encouraged to use the program periodically so they will be well-informed concerning their current appointment schedule.

Students are permitted to schedule one appointment at a time for any of the appointment types. If a student attempts to schedule a second appointment for a given type, the computer notifies him/her of the previously scheduled appointment and the student has the option of cancelling it so the new appointment can be made or keeping the older appointment.

Students must know their ID numbers and/or the exact name under which they were enrolled in the system by the teacher so that they can sign on. A sample run is shown below:

```
WELCOME TO THE APPOINTMENT PROGRAM
DO YOU WISH TO SIGNON WITH YOUR NAME(Y/N)? Y
ENTER NAME? ADAMS JOHN
```

(if student responds with N, the computer will request the ID number and the student can signon using it instead--if the student's name is not entered exactly as the teacher enrolled him/her, the computer will notify the student that the name or number was not located and give the student the option of trying again or leaving the program)

```
                    GREETINGS
HERE ARE THE LATEST COMMUNICATIONS FROM YOUR INSTRUCTOR:
HELLO AND GOOD LUCK IN YOUR APPOINTMENT SCHEDULING!
```

(if no messages have been entered by the teacher, the 3 lines above will not be displayed)

STUDENT DIRECTORY

GENERAL OPTIONS
1) REVIEW APPOINTMENT INFORMATION/MAKE AN APPOINTMENT
2) REVIEW/CANCEL YOUR PREVIOUSLY MADE APPOINTMENTS
3) EXIT THE PROGRAM
ENTER THE NUMBER OF YOUR CHOICE?

The student will be given these options frequently as the program continues. Each of the general options is discussed below.

1) REVIEW APPOINTMENT INFORMATION/MAKE AN APPOINTMENT

When the student chooses general option 1, the computer will print the folllowing list:

APPOINTMENT OPTIONS
1) REVIEW WHEN APPOINTMENTS ARE AVAILABLE
2) SEE A LISTING OF ALREADY RESERVED TIMES FOR A RANGE OF DAYS
3) ATTEMPT TO MAKE AN APPOINTMENT
4) GO BACK TO GENERAL OPTIONS
5) EXIT THE PROGRAM
ENTER THE NUMBER OF YOUR CHOICE?

These options permit the student to view the current data on when appointments can be made or when they are not available (option 1), to see when a particular type of appointment is still available (option 2), to schedule an appointment subject to these availability conditions (option 3), to return to the list of general options (option 4), or to leave the program (option 5).

Choosing appointment option 1 will cause the computer to print the following:

AVAILABILITY INFORMATION

YOUR OPTIONS ARE
1) SEE A LISTING OF DATES UNAVAILABLE FOR ANY APPOINTMENTS
2) SEE A LISTING OF DAYS AND TIMES WHEN APPOINTMENTS ARE ALLOWED
3) SEE A LISTING OF SPECIAL CANCELLATIONS FOR EACH APPOINTMENT TYPE
ENTER ONE OF ABOVE NUMBERS OR A ZERO WHEN FINISHED?

The student chooses one of these options to view the specific information which he/she needs to decide what day and time is best for an appointment. (The student could go directly to Appointment Option 3 and attempt to schedule an appointment without viewing this data since the computer will check the availability

information automatically before permitting an appointment to be confirmed.) Option 1 lists the dates which the teacher has specified as holidays or as otherwise unavailable for any type of appointment. Option 2 provides the names of the available appointment types and asks the student to choose one. The days of the week and the times normally available then are printed on the system terminal. Option 3 also provides the names of the available appointments and asks the student to choose which type he/she desires. The computer then prints a list of any specific date and time cancellations which the teacher has specified for that appointment type. A sample run is shown below:

```
                    APPOINTMENT OPTIONS
1) REVIEW WHEN APPOINTMENTS ARE AVAILABLE
2) SEE A LISTING OF ALREADY RESERVED TIMES FOR
    A RANGE OF DAYS
3) ATTEMPT TO MAKE AN APPOINTMENT
4) GO BACK TO GENERAL OPTIONS
5) EXIT THE PROGRAM
ENTER THE NUMBER OF YOUR CHOICE? 1

                AVAILABILITY INFORMATION

YOUR OPTIONS ARE
1) SEE A LISTING OF DATES UNAVAILABLE FOR ANY APPOINTMENTS
2) SEE A LISTING OF DAYS AND TIMES WHEN APPOINTMENTS ARE
    ALLOWED
3) SEE A LISTING OF SPECIAL CANCELLATIONS FOR EACH
    APPOINTMENT TYPE
ENTER ONE OF ABOVE NUMBERS OR A ZERO WHEN FINISHED? 1

FOLLOWING ARE DATES UNAVAILABLE FOR ANY APPOINTMENT:
1) 11/22
(all dates entered by the teacher will be printed)
YOUR OPTIONS ARE
1) SEE A LISTING OF DATES UNAVAILABLE FOR ANY APPOINTMENTS
2) SEE A LISTING OF DAYS AND TIMES WHEN APPOINTMENTS ARE
    ALLOWED
3) SEE A LISTING OF SPECIAL CANCELLATIONS FOR EACH
    APPOINTMENT TYPE
ENTER ONE OF ABOVE NUMBERS OR A ZERO WHEN FINISHED? 2

FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS FOLLOWING VARIETIES
1) VIEW MOVIE
```

14

```
2) VIEW FILMSTRIP
ENTER NUMBER OF THE TYPE ABOUT WHICH YOU WISH THE
INFORMATION.  ENTER A ZERO WHEN FINISHED.  ? 2

AN 'X' WILL BE DISPLAYED UNDER EVERY TIME THAT IS
AVAILABLE FOR APPOINTMENTS.

   8 830 9 930 10 1030 11 1130 1 130 2 230 3 330 4 430 5 530 6 630
7   730 8
M              X       X             X     X
TU X     X     X       X       X     X     X     X
 .
 .
 .
(all days and times specified by the teacher as available for this
appointment type will be displayed)
ENTER NUMBER OF THE TYPE ABOUT WHICH YOU WISH THE
INFORMATION.  ENTER A ZERO WHEN FINISHED.  ? 0
(student could continue viewing the schedule for other appointment
types, but has entered a zero to leave this option)
YOUR OPTIONS ARE
1) SEE A LISTING OF DATES UNAVAILABLE FOR ANY APPOINTMENTS
2) SEE A LISTING OF DAYS AND TIMES WHEN APPOINTMENTS ARE
    ALLOWED
3) SEE A LISTING OF SPECIAL CANCELLATIONS FOR EACH
    APPOINTMENT TYPE
ENTER ONE OF ABOVE NUMBERS OR A ZERO WHEN FINISHED? 3
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
 .
 .
 .
(list of appointment types is printed again)
ENTER NUMBER OF THE TYPE ABOUT WHICH YOU WISH THE INFORMATION.
ENTER A ZERO WHEN FINISHED.  ? 2

FOR APPOINTMENT WITH INSTRUCTOR THE FOLLOWING
CANCELLATIONS HAVE BEEN ENTERED
1) 08/30 FOR THE AFTERNOON HOURS (1 TO 5)
(any dates and times which the teacher has cancelled for this
appointment type will be displayed)
ENTER THE NUMBER OF THE TYPE ABOUT WHICH YOU WISH THE INFORMATION.
ENTER A ZERO WHEN FINISHED.  ? 0
(student could continue viewing cancelled dates and times, but has
entered zero to leave this option)
YOUR OPTIONS ARE
1) SEE A LISTING OF DATES UNAVAILABLE FOR ANY APPOINTMENTS
2) SEE A LISTING OF DAYS AND TIMES WHEN APPOINTMENTS ARE
    ALLOWED
3) SEE A LISTING OF SPECIAL CANCELLATIONS FOR EACH
    APPOINTMENT TYPE
ENTER ONE OF ABOVE NUMBERS OR A ZERO WHEN FINISHED? 0
(student returns to choose another of the Appointment Options)
```

If the student chooses appointment option 2, the computer will provide a list of the appointment types and ask the student to choose one and to specify a range of five days or less. The computer then displays a list of all times for which that kind of appointment has been scheduled during that period. This list provides the names of those students who have appointments and informs the user how many people already have scheduled a specific type of appointment at any time. The sample run below shows the format of this list:

```
ENTER THE NUMBER OF YOUR CHOICE? 2
(student chooses Appointment Option 2)


FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS FOLLOWING VARIETIES
1) VIEW MOVIE
2) VIEW FILMSTRIP
ENTER NUMBER OF THE TYPE YOU ARE INTERESTED IN.  WHEN
FINISHED ENTER A ZERO.  ? 2

YOU MAY HAVE A LISTING OF UP TO 5 APPOINTMENT DAYS AT A TIME
ENTER NUMBER OF DAYS YOU ARE INTERESTED IN (1 TO 5)? 1
ENTER STARTING DATE FOR THE LISTING USING THE FORMAT MM/DD
BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY (EG.
JANUARY 9TH WOULD BE 01/09).  IF ENTERED DATE IS NOT AN
APPOINTMENT DATE THEN THE NEAREST EARLIER APPOINTMENT
DATE WILL BE USED.
ENTER STARTING DATE? 09/05
ON 09/05 AT 10
COX JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 FOR THAT HOUR.
ON 09/05 AT 2
WILLIAMS JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 FOR THAT HOUR.
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
 .
 .
 .
(list of appointment types is printed)
ENTER NUMBER OF THE TYPE YOU ARE INTERESTED IN.  WHEN
FINISHED ENTER A ZERO.  ? 0
(student returns to choose another Appointment Option)
```

If the student chooses appointment option 3, the computer requests the type of appointment which the student wishes to schedule and the desired date and time, and checks this information to be sure it is valid. The student's other scheduled appointments also are checked and any conflict is reported to the student. The previously scheduled appointment can be cancelled or another date and time can be selected for the new appointment. A sample run is shown below:

```
ENTER THE NUMBER OF YOUR CHOICE? 3
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS THE FOLLOWING VARIETIES
1) VIEW MOVIE
2) VIEW FILMSTRIP
ENTER THE NUMBER OF THE ONE FOR WHICH YOU WISH TO MAKE
AN APPOINTMENT.  ENTER A ZERO WHEN FINISHED.  ? 2
ENTER THE DATE OF THE DESIRED APPOINTMENT USING THE FORMAT
MM/DD BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY
(EG.  JANUARY 9TH WOULD BE 01/09).
THE FINAL DATE FOR ANY APPOINTMENT IS 12/20
TODAY'S DATE IS 09/04
ENTER YOUR DATE? 09/05
ENTERED DATE IS A WEDNESDAY
IS THAT THE DAY YOU WANTED(Y/N)? Y

FOLLOWING ARE THE HOURS ON WHICH APPOINTMENTS MAY BE MADE

1) 8:00 (2) 8:30 (3) 9:00 (4)  9:30 (5) 10:00 (6) 10:30
7) 11:00 (8) 11:30 (9) 1:00 (10) 1:30 (11)  2:00 (12) 2:30
13) 3:00 (14) 3:30 (15) 4:00 (16) 4:30 (17)  5:00 (18) 5:30
19) 6:00 (20) 6:30 (21) 7:00 (22) 7:30 (23)  8:00
ENTER NUMBER OF THE HOUR YOU WANT? 5
YOU ALREADY HAVE AN APPOINTMENT ON 09/05 AT 10:00
DO YOU WANT TO REPLACE THE PREVIOUS APPOINTMENT WITH
THE ONE JUST ENTERED(Y/N)? N
(this message appears only when a conflict arises)
DO YOU WANT TO TRY AGAIN FOR THE SAME APPOINTMENT TYPE WITH
A NEW DATE AND HOUR(Y/N)? Y
ENTER THE DATE OF THE DESIRED APPOINTMENT USING THE FORMAT
MM/DD BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY
(EG.  JANUARY 9TH WOULD BE 01/09).
THE FINAL DATE FOR ANY APPOINTMENT IS 12/20
TODAY'S DATE IS 09/04
ENTER YOUR DATE? 09/05
ENTERED DATE IS A WEDNESDAY
IS THAT THE DAY YOU WANTED(Y/N)? Y
```

```
FOLLOWING ARE THE HOURS ON WHICH APPOINTMENTS MAY BE MADE

1)  8:00 (2) 8:30 (3) 9:00 (4) 9:30 (5) 10:00 (6) 10:30
7) 11:00 (8)  11:30 (9) 1:00 (10) 1:30 (11) 2:00 (12) 2:30
13) 3:00 (14)  3:30 (15) 4:00 (16) 4:30 (17) 5:00 (18) 5:30
19) 6:00 (20)  6:30 (21) 7:00 (22) 7:30 (23) 8:00
ENTER NUMBER OF THE HOUR YOU WANT?  7
DATE AND TIME ARE ACCEPTABLE FOR AN APPOINTMENT.
DO YOU WANT TO RECORD THE APPOINTMENT(Y/N)?  Y
AN APPOINTMENT HAS BEEN RECORDED FOR:
 12225
ADAMS JOHN
FOR APPOINTMENT WITH INSTRUCTOR
ON 09/05 AT 11:00

FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
 .
 .
 .
(list of appointment types is printed)
ENTER THE NUMBER OF THE ONE FOR WHICH YOU WISH TO MAKE
AN APPOINTMENT.  ENTER A ZERO WHEN FINISHED.  ?  0
```

(student could continue scheduling other appointments, but must enter zero to return to the list of Appointment Options when finished)

If the student chooses appointment option 4, the computer returns to the list of general options and asks the student to make another selection.

If the student chooses appointment option 5, the computer saves the current appointment information and stops execution of the scheduling program so another program can be run.

2) REVIEW/CANCEL YOUR PREVIOUSLY MADE APPOINTMENTS

When the student chooses general option 2, the computer prints the list of appointment types and asks the student to choose one. The computer then prints the date and time for any appointment of the specified type which the student has scheduled. If the appointment is no longer valid because the teacher has changed the conditions resulting in cancellation, a message is printed to notify the student. For this reason, students should be encouraged to use general option 2 frequently so they are aware of any such changes in schedule. The student also is given an opportunity to cancel each appointment as it is listed. A sample run is shown below:

```
                    GENERAL OPTIONS
1) REVIEW APPOINTMENT INFORMATION/MAKE AN APPOINTMENT
2) REVIEW/CANCEL YOUR PREVIOUSLY MADE APPOINTMENTS
3) EXIT THE PROGRAM
```

```
ENTER THE NUMBER OF YOUR CHOICE? 2

FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS FOLLOWING VARIETIES
1) VIEW MOVIE
2) VIEW FILMSTRIP
ENTER NUMBER OF APPOINTMENT TYPE YOU WISH TO EXAMINE.
ENTER A ZERO WHEN FINISHED.
? 2
ADAMS JOHN
FOR APPOINTMENT WITH INSTRUCTOR
ON 09/05 AT 11:00
DO YOU WISH TO CANCEL THIS APPOINTMENT(Y/N)? N
(if the student cancels an appointment less than 24 hours in
advance, the computer also prints a message telling him/her to
notify the teacher that the appointment has been cancelled--if the
teacher has cancelled an appointment, a message is printed to
inform the student)
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
 .
 .
 .
(list of appointment types is printed)
ENTER THE NUMBER OF APPOINTMENT TYPE YOU WISH TO EXAMINE.
ENTER A ZERO WHEN FINISHED.
? 0
(student could continue viewing appointments for the other types,
but must type a zero to return to the general option list)
```

3) EXIT THE PROGRAM

When the student chooses general option 3, the computer transfers all the current appointment data back to storage and terminates execution so that another program can be used.

Teacher Uses of the Appointment System

After the program has been initialized, the teacher can sign on using the name INSTR and the password for the system. If the final date for the semester has passed, the computer will print a message informing the teacher that students are no longer permitted access to the program. The sign on procedure for the teacher is shown below:

```
WELCOME TO THE APPOINTMENT PROGRAM
DO YOU WISH TO SIGNON WITH YOUR NAME (Y/N)? Y
```

ENTER NAME? INSTR
ENTER PASSWORD OR TYPE BYE TO EXIT PROGRAM? (teacher types password)

The computer then prints the following list of teacher options:

GENERAL OPTIONS

1) INITIALIZE PROGRAM FOR CURRENT SEMESTER
2) REVIEW RECORDED STUDENT APPOINTMENTS
3) REVIEW/CHANGE INITIAL CONDITIONS
4) REVIEW/CHANGE DATES OF DAYS UNAVAILABLE FOR ANY APPOINTMENTS
5) REVIEW/CHANGE CANCELLATION DATES OF NORMALLY VALID DATES AND TIMES
6) REVIEW/CHANGE MESSAGES TO STUDENTS
7) EXIT THE PROGRAM

Using these options the teacher has access to all the facilities of the program except those concerned with actually recording an appointment. Each option is discussed in the sections below.

1) INITIALIZE PROGRAM FOR CURRENT SEMESTER

This option is intended for use only at the start of a new semester. The computer prints a message warning the teacher not to use it unless the previous class has ended and a new semester is starting. The teacher should choose general option 3 merely to change the final date or other conditions during a semester.

If the teacher is ready to initialize the program for a new semester, the computer will guide him/her through the same steps as discussed under initializing the system. If the teacher chose general option 1 by mistake, an opportunity to choose another option instead is given after the warning message.

2) REVIEW RECORDED STUDENT APPOINTMENTS

Choosing general option 2 permits the teacher to view scheduled appointments. The computer prints a list of options from which the teacher can choose:

1) REVIEW APPOINTMENTS OF A SPECIFIC STUDENT
2) REVIEW APPOINTMENTS ON A SPECIFIC DATE AND TIME
3) REVIEW APPOINTMENTS FOR ALL HOURS FOR A RANGE OF DAYS
4) GO BACK TO GENERAL OPTIONS
5) EXIT PROGRAM

If the teacher chooses option 1, the computer permits the teacher to enter the name or ID number of a student and displays any appointments which that student has scheduled. If the name or ID number is not typed exactly as entered during initialization, the computer will notify the teacher and permit him/her to try again or choose another general option. If the student's name or ID number is found, the teacher must choose an appointment type and the student's appointments are displayed for that type. A sample run is shown below:

```
ENTER THE NUMBER OF YOUR CHOICE? 1
DO YOU WISH TO ENTER THE STUDENT'S NAME (Y/N)? N
(teacher could respond yes and type the name)
ENTER ID NUMBER? 12225
(teacher enters ID number for student John Adams)
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES


1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS THE FOLLOWING VARIETIES
1) VIEW MOVIE
2) VIEW FILMSTRIP
ENTER THE NUMBER OF APPOINTMENT TYPE YOU WISH TO EXAMINE.
ENTER A ZERO WHEN FINISHED.
? 2
ADAMS JOHN
FOR APPOINTMENT WITH INSTRUCTOR
ON 09/05 AT 11:00
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
  .
  .
  .
(names of appointment types are printed again)
ENTER A ZERO WHEN FINISHED.
? 0
(teacher could continue viewing appointments for the same student,
but must enter a zero to return to the secondary options when
finished)
```

If the teacher chooses option 2, the computer requests the appointment type, date, and time for which the teacher desires a display. If this data is entered correctly, the display is printed on the system terminal. If the teacher chooses a date and time which is not available for the specified appointment type, a message is printed to remind the teacher that no appointments can be scheduled at that time. A sample run is shown below:

```
ENTER THE NUMBER OF YOUR CHOICE? 2
```

```
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES


1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS THE FOLLOWING VARIETIES
1) VIEW MOVIE
2) VIEW FILMSTRIP
ENTER THE NUMBER OF THE TYPE YOU ARE INTERESTED IN.
ENTER A ZERO WHEN FINISHED.? 2
ENTER THE DATE DESIRED USING THE FORMAT MM/DD BEING SURE TO
USE TWO DIGITS FOR BOTH MONTH AND DAY (EG. JANUARY 9TH WOULD
BE 01/09).  TODAY'S DATE IS 09/04
ENTER YOUR DATE? 09/05

ENTERED DATE IS A WEDNESDAY
IS THAT THE DAY YOU WANTED (Y/N)? Y


FOLLOWING ARE THE HOURS ON WHICH APPOINTMENTS MAY BE MADE


1) 8:00 (2) 8:30 (3) 9:00 (4) 9:30 (5) 10:00 (6) 10:30
7) 11:00 (8) 11:30 (9) 1:00 (10) 1:30 (11) 2:00 (12) 2:30
13) 3:00 (14) 3:30 (15) 4:00 (16) 4:30 (17) 5:00 (18) 5:30
19) 6:00 (20) 6:30 (21) 7:00 (22) 7:30 (23) 8:00
ENTER NUMBER OF THE HOUR YOU WANT? 7
FOR APPOINTMENT WITH INSTRUCTOR
ON 09/05 AT 11:00
ADAMS JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 APPOINTMENTS AT THAT HR.
END OF LISTING
WOULD YOU LIKE TO TRY ANOTHER DATE AND HOUR FOR THE SAME
APPOINTMENT TYPE (Y/N)? N
(teacher could continue viewing appointments with instructor at
other dates and/or times)
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
 .
 .
 .
(appointment types are printed again)
ENTER A ZERO WHEN FINISHED.  ? 0
(teacher could continue viewing other appointment types, but must
enter zero when ready to choose another option)
```

If the teacher chooses option 3, the computer will request the appointment type and a range of five days or less. If the days are valid for the current semester, the computer will print a list of all students who have a scheduled appointment of that type during the specified period. This option is most useful for teachers wishing to keep track of who has an appointment. A sample run is shown below:

```
ENTER THE NUMBER OF YOUR CHOICE? 3

FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
THE LAST APPOINTMENT TYPE HAS THE FOLLOWING VARIETIES
1) VIEW MOVIE
2) VIEW FILMSTRIP
ENTER NUMBER OF ONE WHOSE APPOINTMENTS YOU WISH TO
EXAMINE.  ENTER A ZERO WHEN FINISHED.
? 2

YOU MAY HAVE A LISTING OF UP TO 5 APPOINTMENT DAYS AT A TIME
ENTER NUMBER OF DAYS YOU ARE INTERESTED IN (1 TO 5)? 2
ENTER STARTING DATE FOR THE LISTING USING THE FORMAT MM/DD
BEING  SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY (EG.  JANUARY
9TH WOULD BE 01/09).  IF ENTERED DATE IS NOT AN
APPOINTMENT DATE THEN THE NEAREST EARLIER APPOINTMENT
DATE WILL BE USED.
ENTER STARTING DATE?  09/05
ON 09/05 AT 10:00
COX JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 FOR THAT HOUR.
ON 09/05 AT 11:00
ADAMS JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 FOR THAT HOUR.
ON 09/05 AT 2:00
WILLIAMS JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 FOR THAT HOUR.
ON 09/05 AT 1:00
SMITH JOHN
A TOTAL OF 1 OUT OF A MAX OF 2 FOR THAT HOUR.
END OF LISTING
WOULD YOU LIKE TO SEE ANOTHER LISTING FOR THIS SAME
APPOINTMENT TYPE (Y/N)?  N
(teacher could specify another range for the same type)
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
  .
  .
  .
```

(names are printed again)
ENTER A ZERO WHEN FINISHED. ? 0
(teacher could continue viewing other appointments, but must enter zero when ready to select another option)

If the teacher chooses option 4, the computer returns to the general options and requests the teacher to make another selection.

If the teacher chooses option 5, the computer stores the current appointment data and terminates execution so that another program can be run.

3) REVIEW/CHANGE INITIAL CONDITIONS

When the teacher chooses general option 3, the computer prints another "menu" of possible changes which can be made to the appointment data:

1) ID NUMBERS AND NAMES
2) STARTING AND FINAL APPOINTMENT DATES
3) NAMES OF THE APPOINTMENT TYPES AND NUMBER OF PEOPLE
   ALLOWED TO MAKE SAME APPOINTMENT FOR EACH TYPE
4) AVAILABLE DAYS AND HOURS FOR EACH APPOINTMENT TYPE.
ENTER NUMBER OF THE ONE WHICH YOU WISH TO REVIEW/CHANGE--OR
ENTER ONE OF THE FOLLOWING NUMBERS:
5) GO BACK TO GENERAL OPTIONS
6) EXIT THE PROGRAM.

If the teacher chooses option 1, the computer prints the current list of names and ID numbers and permits the teacher to replace or add names and corresponding ID numbers to the list.

If the teacher chooses option 2, the computer prints the current starting and final dates and permits the teacher to change them. The new final date still must be within 17 weeks of the starting date. If the new final date is earlier than the old one, the teacher can view a list of any appointments which must be cancelled due to the change. The computer notifies students of cancellations automatically when they sign on and choose general option 2 from the student directory. If the teacher decides to change the starting date, all appointments and cancellation dates are destroyed, so this drastic step should be taken only if a mistake is noticed during initialization.

If the teacher chooses option 3, the appointment names are displayed along with the maximum number of students who can schedule each type at any given time. The teacher can change any of these names or numbers as is done during initialization. Changing the name to UNAVAILABLE or reducing the number of students who can schedule an appointment at the same time may

result in cancellation of some appointments. The teacher in this case has the option of cancelling all appointments scheduled at times which exceed the new maximum or leaving the appointments valid but permitting only the new number in the future. If the teacher decides to cancel the appointments, students will be notified as discussed above, and the teacher can view a list of the cancelled appointments if desired. A sample run is shown below:

```
ENTER NUMBER? 3

FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES AND THE
NUMBER OF PEOPLE ALLOWED TO MAKE AN APPOINTMENT AT SAME TIME:

1) UNAVAILABLE   0
2) APPOINTMENT WITH INSTRUCTOR   2
3) APPOINTMENT FOR A TEST   4
4) APPOINTMENT WITH TUTOR   2
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP   2

HERE ARE THE NAMES OF THE VARIETIES OF THE LAST TYPE:

1) VIEW MOVIE
2) VIEW FILMSTRIP

WOULD YOU LIKE TO MAKE ANY CHANGES (Y/N)? Y
DO YOU WANT TO CHANGE
1) APPOINTMENT NAMES
2) THE NUMBER OF PEOPLE ALLOWED AT ONE TIME
ENTER THE NUMBER OF YOUR CHOICE? 2
(teacher wishes to change the number of people who can sign up to
take a test at one time)

FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES

1) UNAVAILABLE
2) APPOINTMENT WITH INSTRUCTOR
3) APPOINTMENT FOR A TEST
4) APPOINTMENT WITH TUTOR
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP
ENTER THE NUMBER OF THE APPOINTMENT TYPE WHICH
CORRESPONDS TO THE ONE WHOSE NUMBER OF PEOPLE YOU
WISH TO ENTER.  ENTER A ZERO WHEN FINISHED.  ? 3
ENTER THE NUMBER OF PEOPLE WHO MAY MAKE AN
APPOINTMENT AT THE SAME TIME.  ? 3
THE NUMBER IS CHANGED FROM 4 TO 3
IS THAT CORRECT (Y/N)? Y
SINCE THE NEWLY ENTERED AMOUNT IS LESS THAN THE
PREVIOUSLY USED AMOUNT, WHAT DO YOU WISH TO DO ABOUT
THOSE CASES (IF ANY) IN WHICH THE NUMBER OF APPOINT-
MENTS ALREADY RECORDED EXCEED THE NEW AMOUNT:
1) ALLOW ALREADY RECORDED APPOINTMENTS TO REMAIN
```

```
2) SAME AS 1, BUT ALSO SEE A LISTING OF SUCH
     APPOINTMENTS FOR ALL DATES AND HOURS
3) CANCEL ALL APPOINTMENTS WHICH EXCEED NEW AMOUNT
4) SAME AS 3, BUT ALSO SEE A LISTING OF ALL
     CANCELLED APOINTMENTS
ENTER THE NUMBER OF YOUR CHOICE? 1
```

(teacher decided in this case to leave scheduled appointments alone--if option 2 is chosen, any date and time with more than 3 appointments for a test would be printed along with the names of the involved students so that the teacher could make other arrangements--if option 3 is chosen, those appointments would be cancelled, but not listed--option 4 permits the teacher to view the list of the cancellations)

```
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES
 .
 .
 .
```

(list of types is printed again)

```
ENTER THE NUMBER OF THE APPOINTMENT TYPE WHICH
CORRESPONDS TO THE ONE WHOSE NUMBER OF PEOPLE YOU
WISH TO ENTER.  ENTER A ZERO WHEN FINISHED.  ? 0
```

(teacher has no more changes to make at this time)

```
FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES AND THE
NUMBER OF PEOPLE ALLOWED TO MAKE AN APPOINTMENT AT SAME TIME:

1) UNAVAILABLE   0
2) APPOINTMENT WITH INSTRUCTOR   2
3) APPOINTMENT FOR A TEST   3
4) APPOINTMENT WITH TUTOR   2
5) APPOINTMENT TO VIEW MOVIE OR FILMSTRIP   2

HERE ARE THE NAMES OF THE VARIETIES OF THE LAST TYPE:
1) VIEW MOVIE
2) VIEW FILMSTRIP

WOULD YOU LIKE TO MAKE ANY CHANGES (Y/N)? N
```

(the teacher returns to choose another option after the updated list is printed)

If the teacher chooses option 4, the appointment names are displayed and the teacher selects the one for which new times or days of the week are to be entered. The days and times presently available for the specified appointment type are displayed and the teacher can choose the days to be changed and enter the new available times for each day. Any appointments which are cancelled by the changes can be listed on the system terminal so the teacher can notify the students involved. The computer notifies the students automatically the next time they sign on and choose general option 2 in the student section.

If the teacher chooses option 5, the computer again displays the general options and requests the teacher to make another selection.

If the teacher chooses option 6, the computer stores the current appointment data and terminates execution so that another program can be run.

4) REVIEW/CHANGE DATES OF DAYS UNAVAILABLE FOR ANY APPOINTMENTS

When the teacher chooses general option 4, the computer prints a list of the currently unavailable dates and gives the teacher the chance to delete or add any dates. If any appointments were scheduled which now must be cancelled due to the change, the teacher again can see a list of names. The computer will notify the students automatically as discussed above.

5) REVIEW/CHANGE CANCELLATIONS OF NORMALLY VALID DATES AND TIMES

When the teacher chooses general option 5, the computer prints the appointment names and asks the teacher to select one. If that type of appointment has any cancellations, they are displayed. The teacher can add or delete dates and/or times for that appointment type. If any appointments were scheduled previously which now must be cancelled due to the changes, the teacher again can see a list of names. The computer will notify the students automatically the next time they sign on and choose student general option 2.

6) REVIEW/CHANGE MESSAGES TO STUDENTS

When the teacher chooses general option 6, the computer prints any messages which the teacher has entered previously. These messages are displayed whenever a student signs on. The teacher can include messages to notify students that appointments have been cancelled on certain days, that assignments are due, or other necessary information. The computer first gives the teacher a chance to delete message lines which no longer are needed and then the teacher has an opportunity to add new lines up to the maximum number permitted (this number can be changed if needed--see the PROGRAMMER'S GUIDE). A sample run is shown below:

```
ENTER NUMBER OF YOUR CHOICE? 6

FOLLOWING ARE THE CURRENT MESSAGES:
1) HELLO AND GOOD-LUCK IN YOUR APPOINTMENT SCHEDULING!
(teacher previously entered this message)

WOULD YOU LIKE TO MAKE ANY CHANGES (Y/N)? Y
(teacher wants to delete this old message)

DO YOU WISH TO DELETE A MESSAGE LINE (Y/N)? Y
```

ENTER LINE NUMBER YOU WISH TO DELETE. ENTER A ZERO
WHEN FINISHED.
? 1
(since only one message line was entered previously, the computer does not continue giving the deletion option--normally the teacher would have to enter a zero before adding new lines)
DO YOU WISH TO ADD A NEW MESSAGE LINE (Y/N)? Y
WHEN FINISHED ENTER LETTER X.
MESSAGE IS? NO APPOINTMENTS CAN BE SCHEDULED FOR NOVEMBER 18 DUE
MESSAGE IS? TO TEACHER'S MEETING.
MESSAGE IS? X
(teacher enters X on a separate line to stop inputting messages)
FOLLOWING ARE THE CURRENT MESSAGES:
1) NO APPOINTMENTS CAN BE SCHEDULED FOR NOVEMBER 18 DUE
2) TO TEACHER'S MEETING.

WOULD YOU LIKE TO MAKE ANY CHANGES (Y/N)? N
(teacher could continue adding lines, but must enter N here eventually to return to the general options. If the maximum number of message lines is reached, the computer notifies the teacher and provides one chance to delete old lines)

7) EXIT THE PROGRAM

When the teacher chooses option 7, the current appointment information is stored and the computer terminates execution so another program can be run.

PROGRAMMER'S GUIDE

This part of the documentation is designed to assist the system programmer with understanding and using the Appointment System or with converting the program into another version of BASIC for use on another computer. The types of changes needed to adapt the program to a particular teacher's needs are provided as well as conversion guidelines for transporting the program to another system (including the reduction of program size through CHAINing). A discussion of the data file's structure, a list of variables used in the program and their functions, and a listing of the CDC Cyber BASIC program itself also are provided.

File Structure

The data file used in the present version of the Appointment Program is named AVIDAT2 (this name can be changed by rewriting line 410). This file is sequential in nature and is read into memory at the start of each run and stored again (with updates if necessary) at the end of each run. The data is stored in the same format as it is used by the program. The following data is written in order in the file:

1. ID numbers stored in numeric order. Each number occupies one record. This data is stored internally in array A1.
2. Indices to associate each ID number with the corresponding name. Each index occupies one record. Stored internally in array A2, this data is used to find the subscript of the associated name in array A5$.
3. ID numbers of additional students who enroll later in the semester, stored in the order they were entered. Each number occupies one record. This information is stored internally in array A3.
4. Names of students who were enrolled at the start of the semester in alphabetical order. Each name occupies one record. This data is stored internally in array A5$.
5. Indices to associate each name with its ID number. Each index occupies one record. Stored internally in array A6, this data is used to find the subscript of the associated ID number in array A1.
6. Names of students who enrolled later in the semester in the order the teacher entered them. Each name occupies one record. This data is stored internally in array A7$. Since these additional names are in the same order as the associated ID numbers in array A3, no index is required.
7. Indices to find dates of recorded appointments. Each index occupies one record. Stored internally in array B1, this data is used to find a specified student's appointment dates in array B4$.
8. Indices to find times of recorded appointments. Each index occupies one record. Stored internally in array B2, this information is used to find a specified student's appointment hour in array A9$.

9. Indices to find which type of activity of the last appointment type a student has scheduled. Each index occupies one record. Stored internally in array B3, this data is used to find the subscript into D8$ which contains the names of the last appointment type's activities.
10. Names of all dates (strings of form MM/DD) of days in the range between the starting and final dates of the semester. Each date occupies one record. This data is stored internally in array B4$.
11. Indices to find dates which are unavailable for any appointments. Each index occupies one record. Stored internally in array B5, this information is used to find the subscript into B4$ which contains the dates declared unavailable.
12. Messages from teacher to all students. Each message line occupies one record. These messages are stored internally in array B6$.
13. Number of appointments recorded at a given time. Each number occupies one record. Stored internally in array B9, this information corresponds with the times held in array A9$.
14. Indices to find date and time of appointment cancellations. Each index requires one record. Stored internally in array C, this data is used to find the subscript of the date in array B4$ and the time in array A9$ (each cancellation requires two indices).
15. Flags to find days of the week and times for which each appointment is available. Each flag occupies one record. Stored internally as array D, a 1 in any location indicates that the associated day or time is available for that type of appointment.
16. Names of appointment types. Each name occupies one record. This data is stored internally in array D7$.
17. Names of activity varieties for the last appointment type. Each name occupies one record. This information is stored internally in array D8$.
18. Number of simultaneous appointments permitted for each type. Each number occupies one record. This data is stored internally in array D9.
19. Index to the next unused storage location for dates which are unavailable for any appointments. This index occupies one record. Stored internally as variable I8, the index is the first unused subscript in array B5.
20. Index to the final date. This index occupies one record. It is stored internally as variable J1 which is the subscript of the location in array B4$ which contains the final date.
21. Number of message lines from teacher currently in use. This number occupies one record. It is stored internally as variable E6 which is the subscript of the last location in array B6$ containing a message line.
22. Number of students initially enrolled. This number occupies one record. It is stored internally as variable F5 which is the subscript of the last location in array A5$ containing a name.
23. Total number of students enrolled. This number occupies one record. It is stored internally as variable F6.

24. Number of students enrolled later in the semester. This number occupies one record. It is stored internally as variable G4 which is the subscript of the last location in array A7$ which contains a name.

To determine the length of the data file, it is necessary to identify the following variables:

F7--maximum number of students permitted for initial enrollment
F8--maximum number of students permitted for enrollment later in the semester
G2--maximum number of possible appointment types
K1--maximum number of possible varieties and/or locations for the last type of appointment
K5--maximum number of days/week which are available to the teacher to permit appointment scheduling
F9--maximum number of dates permitted for the teacher to declare unavailable for any appointments
E5--maximum number of message lines permitted
H2--maximum number of time codes for when appointments can be scheduled
I6--maximum number of dates which can be cancelled by teacher for each appointment type
L1--length (in bytes) required to store a numeric value on disk
L2--length (in bytes) required to store an average length string value on disk

If these values are known, then the following formula gives the approximate number of bytes required for storage of the above data:

```
I6+G2*(1+K5+2*I6+2*F7+2*F8+K5*H2)+H2+F9+F7-F8+3*K1*F7+3*K1*F8)*L1+
(F7+F8+17*K5+E5+G2+K1)*L2
```

For example, suppose the appointment program was initialized with 20 students (F7) and 10 more added later (F8). The teacher also requested 5 appointment types (G2), the last of which had 2 possibe varieties in three different locations (K1=6). Appointments could be scheduled only during the work week (K5=5) and 22 time codes were used (H2). The teacher requested that 10 locations be reserved for unavailable dates (F9), 10 lines be reserved for messages (E5), and that 10 locations be reserved for cancellation of appointment types (I6). Assuming that each numeric value requires 7 bytes of disk storage (L1) and that the average length for string storage is 40, the formula yields the value of 16,528 bytes or about 70 sectors of 256 bytes each.

New Semester/New Teacher User Changes

In order to make the most efficient use of the program facilities, the teacher should provide the following information to the programmer before initializing the data file each semester:

1. An estimate of the number of students who will be enrolled in the class on the original roster when the program is initialized
2. An estimate of the number of students who will be likely to enroll in the class after the original roster has been initialized
3. The maximum number of appointment types desired
4. The maximum number of varieties and locations for the last appointment type
5. The maximum desired range of permissible appointment times encompassing all appointment types and including any excluded times (such as 12 noon, etc.). The teacher should also include any convenience codes which are desired (such as 8 to 4 on the hour)
6. The desired maximum number of possible cancellations for each appointment type. The teacher should also include any convenience codes desired (such as morning, 8 to 12)
7. The maximum desired size of the list of days unavailable for any appointments
8. The maximum number of message lines desired
9. The suggested appointment type names and variety names for the last appointment type (for use only during initialization)
10. A decision on whether a message is to be given to a student who cancels a recorded appointment within a range of days from its due date, and, if so, what the message and range of days is to be
11. The desired codeword and password which will identify the teacher during signon
12. The possible days of the week which are available to the teacher to permit appointments to be scheduled
13. Specific names for the locations of the last appointment type varieties if desired (such as Station 1)
14. The number of weeks in the semester

Once this data is available, the programmer can make the following changes to the BASIC program to implement each of the teacher's requests:

1. Change line number 250 so that the dimensions of A1, A2, A5$, and A6 are set for the desired number. Change the assignment of F7 on line 130 to this value.
2. Change line 250 so that the dimensions of arrays A3 and A7$ are set for the desired number and change the assignment of F8 on line 140 to this value. Finally, change the first dimensions of arrays B1, B2, and B3 on line 160 so they are set equal to the value of F7+F8
3. Change line 100 so that G2 is the total number of appointment types. Change the dimensions of D7$ and D9 in line 270 to

equal G2.

4. Change line 110 so that K1 equals the total number of different locations for all varieties of the last appointment type. Change the second dimension of arrays B1 and B2 on line 250 to equal the value of A4 (G2+K1-1). Change the second dimension of array B3 on line 260 to equal K1.
5. Change line 180 so that H2 is the total number of possible time slots for appointments. Change the dimension of array A9$ in line 280 to the new value of H2. Change the dimension of array E3 on line 270 to the new value of H2. Change the second dimension of array D on line 260 to equal I4 (H2+1). Change DATA lines 290-310 to store the desired names for the times of appointments. Change the PRINT statements on lines 34050-34080 to include the desired times. If new convenience codes are needed, change the PRINT statements on lines 34100-34110 and rework lines 36680-36850 to calculate the new column index values into array D for each code.
6. Change line 200 so that I6 equals the desired number of cancellations. Change the first dimension of array C on line 260 to equal the new value of J8 (G2*I6). To change the convenience codes, change lines 39790-39820 so they contain the new codes. Change lines 40010-40110 to contain the proper range of indices into A9$ for the hours included in the codes. If more than 4 codes are used, you will have to add more checks and ranges between lines 40000 and 40010. Change the PRINT statements on lines 38130-38190 and 44450-44520 to agree with the new codes as well as the checks on lines 38100-38120 and 44420-44440.
7. Change line 150 so that F0 equals the maximum number of possible unavailable dates. Change the dimension of array B5 on line 250 to equal this value.
8. Change line 120 so that E5 equals the maximum number of permitted message lines. Change the dimension of array B6$ on line 250 to equal this value.
9. Change the suggested names of the appointment types on DATA line 330.
10. Change the message text on lines 45645-45655 and lines 49390-49410 to reflect the desired information. Change lines 45640 and 49380 to reflect the number of days notice in the IF statement.
11. Change the codeword on line 630. Change the password on line 950.
12. Change line 170 so that K5 is the total number of days in the week which can be used. Change the dimension of array B7$ on line 280 to this value. Change the dimension of array B4$ on line 260 to equal G3 (17*K5). Change the second dimension of array D on line 260 to equal J9 (G2*K5). Change DATA line 330 to include the desired days. Insert new lines for SA and SU if necessary between lines 33410 and 33420 and delete lines containing days no longer being used. Add new line numbers to the GOTO statement on line 33320.
13. Currently the next to last appointment type is referenced in

the program as STATION 4. If this feature is desirable, but the name is not, change the PRINT statements on lines 44770, 45920, 48510, and 49230. If no station name is desired, you need to change or eliminate the comparisons between C5 and G2 with subsequent branches and PRINT lines in the following groups of lines: 44750-44780, 45880 and 45910-45930, 48580 and 48600-48620, 49250 and 49280-49290. For the last appointment type, if different names are to be used than STATION, change the PRINT statements on lines 44800, 45530, 45890, 48590, 49300, and 49460. If no location name is desired, then you need to delete the statements mentioned. However, this means that the last appointment type is no longer different from the other types and the teacher simply could type UNAVAILABLE for it.

14. Change the value of G3 on line 235 so that the number of weeks is multiplied by 25. Change the dimension of array B4$ on line 260 to the value of G3. Change the text of statements 2910, 2920, 51010, and 51300. Add code after line 12220 to test for J3's reaching 13 and when it does, set it equal to 1. Change or drop lines 51100-51110 if the semester starts before the end of the year and ends after the new year begins. (You may need to rewrite routine 14000 since the binary search of B4$ may not work under such circumstances. Alternatively, months such as January could be coded differently). It may be desirable also to change lines 50010-50090 so the starting month need not be 1, 6, or 9. Don't forget to change DATA statement 320 on leap years!

Other Modifications and Conversion (Transportability) Guidelines

The program in its present form is much too large for many micro-computers (the code itself occupies almost 90K of memory and storage is required for variables also). However, the program could be divided into many smaller segments with CHAINing between segments to simulate the functions of the original Appointment System.

For example, if the program is broken into four parts: Sign-on, Initialization, Instructor's Work, and Student's Work, the memory requirements are reduced considerably. However, for 64K machines, it may be necessary to break these segments into even smaller parts, perhaps one or two subroutines in each part. If this is done, another data file may also be necessary to store such data as the student's name and ID number or flags to indicate where the call originated and to what program to CHAIN when finished.

The Sign-on section of the program requires the subroutines which begin on the following line numbers: 10000, 11000, 14000, 29000, 30000, 31000, 32000, and 52000. The Initialization section requires the following subroutines: 2000, 10000, 12000, 13000,

14000, 15000, 16000, 17000, 18000, 20000, 21000, 22000, 23000, 24000, 25000, 26000, 27000, 28000, 33000, 34000, 36000, 38000, 39000, 41000, 42000, 50000, 51000, and 53000. The Instructor's section requires the following subroutines: 6000, 11000, 12000, 13000, 14000, 15000, 16000, 17000, 18000, 20000, 21000, 22000, 23000, 29000, 30000, 31000, 32000, 33000, 34000, 35000, 36000, 38000, 39000, 41000, 42000, 44000, 47000, 48000, 49000, 50000, 51000, and 53000. The Student's section requires the following subroutines: 5000, 13000, 14000, 15000, 16000, 17000, 33000, 34000, 38000, 41000, 44000, 45000, 48000, 49000, and 53000.

It has been suggested that the following changes might also be made to the program operation:

1. Eliminate the teacher's codeword and require only the password for non-student users. This can be accomplished by changing line 630 to duplicate the test on line 950 and branch to line 990.
2. Eliminate suggested appointment names and require the teacher to enter the desired names during initialization. This can be accomplished by eliminating DATA lines 340-360, deleting lines 3080-3160, and reworking lines 3220-3980 to substitute an input loop for entry of names.
3. Vary the message given when an appointment is cancelled or changed within a range of dates from its due date depending on the type of appointment involved, but keep the range the same for all types. This can be accomplished by inserting appropriate tests for the type involved, using C5, and branches to corresponding messages between lines 45640 and 45700 and between lines 49380 and 49420.
4. Vary both the message and range of dates depending on the type of appointment. This can be done by inserting appropriate tests for the type, using C5, and the difference between due date and current date with branches to the corresponding messages between lines 45635 and 45700 (where the B1(C2,X1)--J5 test is used) and between lines 49370 and 49420 (where the C9--J5 test is used).

In addition to the changes discussed above, the programmer interested in adapting the Appointment System to another computer will probably have to make changes to the syntax of many statements in order to use the program with another version of BASIC. These changes typically involve file commands, string handling, and array usage. The following list is intended to assist the programmer in understanding these types of statements and in identifying those commands which are not used in some versions of the BASIC language. In this discussion, N and N1 are assumed to be numeric variables, S$ is an alphanumeric variable, and LN and LN1 are line numbers.

Arrays are dimensioned using the DIM statement. Some numeric arrays are two dimensional (indicated by two subscripts). In addition, the version of BASIC used must support alphanumeric arrays or some provision will have to be made to permit the use of long strings in indexed form (perhaps using the substring function).

Concatenation of strings is indicated by a plus sign (+) between the strings. The first string is stored in the leftmost positions of the newly formed string, followed by the other strings in the order they appear on the program statement.

DAT$ is a function which returns the date of the current day. If your system does not have such a function, you may read the date from a DATA statement or permit the user to input the date.

FILE # 1 = "AVIDAT2" informs the computer what the data file's name is. Most micro-computers will use a similar statement or an OPEN command and you may have to add the drive number if more than one disk drive is available.

FOR N=10 TO 5 STEP -1 is a loop definition with the STEP informing the computer what increment to use when the NEXT statement is encountered. Most versions of BASIC permit variable increments, but the format may vary.

IF END #1 GOTO LN is used to check the data file for the end-of-file marker. IF-THEN statements in our version of BASIC can contain compound conditions (connected by AND or OR) and the keyword GOTO is used instead of THEN. These statements may need revision for use with another BASIC.

LEN(S$) is a function which returns the length of the string currently stored in the alphanumeric variable S$.

MAT READ S$ is similar to the ordinary READ statement, but permits the computer to read the DATA values of each member of the array S$ without the use of a loop. The values contained in the DATA statement must be in row order (i.e. for two dimensional matrices, the order must be N(1,1), N(1,2), N(1,3), N(2,1), etc.).

MAT READ #1,N is similar to the previous command, but the elements of the matrix are read from the data file instead of DATA statements. Again, the values to be read must be in row order. If your version of BASIC does not permit MAT commands, they can be replaced by loops to input or read each value.

MAT WRITE #1,S$ is the opposite of the MAT READ command discussed in the preceding paragraph. It writes the values of the matrix in row order into the data file. This command also can be replaced by a loop, but be sure that the matrix elements are written in the same order that they will be read.

ON N GOTO LN, LN1 is a multiple branch. Depending on the value of the variable N, the program will branch to different line numbers. If N=1, then the program resumes at LN. If N=2, then the program resumes at LN1. This statement can be replaced by a series of IF-THEN statements which direct execution to the proper line numbers.

READ #1, N is used to input values of regular variables from disk. Some versions of BASIC use commands such as INPUT or DSKIN.

RESTORE #1 closes the data file and permits the program to reassign data files if necessary. Some systems use other commands such as CLOSE.

STR$(N) is a built in function which returns the string representation of the value stored in N.

SUBSTR(S$,N,N1) is a function which returns the susbtring of alphanumeric string S$ starting with the Nth character and containing N1 characters. Some versions of BASIC denote this function differently. Often those BASIC's which do not permit string arrays use notation such as S$(N,N1).

TAB(N) is used to cause the printing device to skip to the Nth column and to resume printing there. If your version of BASIC does not support this command, you can replace it with a string of blank spaces if format is not important in your output, or replace it with a loop to print blanks spaces until the Nth column is reached if format is important.

WRITE #1,N is used to output the value of normal variables to the data file. Some versions of BASIC use commands such as PRINT or DSKOUT.

Description of Code

The following discussion is intended to help the programmer understand the functions of the various subroutines in the Appointment System. Each routine is labelled by its starting and final line numbers.

400-1150 SIGNON SECTION
Tests whether the program is open to students with T indicating the result. The first test is whether the data file is empty (line 430) and T=1 if this is so. If this is the case, no user without the password can access the program, and the teacher with the password only has access to the Initialization section. If the file is not empty, it is read into memory and the next test (line 470) involves determining whether the current date, I7$, is beyond the final date. If so, J2$ will return with "FAILURE" and T=2. Under these conditions the password is required for access

and the teacher is sent to the Instructor's section. If the final date has not passed, the sign on is accomplished.

2000-4710 INITIALIZATION SECTION
Permits the instructor to enter data required for initialization

5000-5900 STUDENT DIRECTORY
Displays messages to students from the teacher and lists options from which students can choose.

6000-9100 INSTRUCTOR DIRECTORY
Lists the options from which the teacher can choose.

10000-10110 CURRENT DATE TEST
Called from the Signon Section, this subroutine conducts a binary search on the array B4$ to determine if the final date has passed. J2$ indicates the result of the search, C8 contains the index of the current day if it is not already passed. G8 is the low index for the search. If the date is not found, but is within the semester (such as a weekend date), the value in C8 is set to the next day following the weekend.

11000-11100 IDENTIFY STUDENT
Determines which subroutine to call in order to search for the student's name or ID number.

12000-12280 DATE FORMULATION
Prepares the strings for the 17 week semester for storage in array B4$. The loop from 12010 to 12180 constructs 1 week of K5 days. J4 is the number of days in the current month (J3).

13000-13110 PRINT APPOINTMENT TYPES
Prints contents of array D7$ and, if K3=1, also prints array D8$ which contains the varieties for the last type.

14000-14170 DATE SEARCH
Conducts a binary search of array B4$ for the input date, C7$. G8 is the low index and G9 the high index for the search. If found, H9 indicates the number of the day of the week.

15000-15030 CLEAR B9
Zeroes out array B9. Called only from routine 16000.

16000-16070 COUNT NUMBER OF PEOPLE WITH SAME APPOINTMENT
For date C8 and column D6, counts the number of appointments for each hour. Called from routine 17000.

17000-17260 EXAMINE APPOINTMENTS
Locates appointments, cancels if necessary by placing 99 into array B1 and prints name of student if necessary. If H6=0 all appointments on day C8 are cancelled. If H6=1 only those appointments on day C8 at hour C6 are cancelled. If H5=0 appointments are listed by name, but no cancellation occurs. If H4=0 cancellation occurs, but names are not listed. When user is a student, D2 is used only to verify proposed new appointments. I2 is set to the value in B3 to indicate the variety of the last appointment type when D6 is greater than or equal to G2.

18000-19060 CHANGE MAXIMUM NUMBER ALLOWED FOR SAME APPOINTMENT
When called from Initialization section, C9=3 and the new number is entered into array D9. When called from Instructor section, C9=2 and the new number, X1, is compared to the old number in array D9. If the new amount is less, then cancellations may be

necessary and the values of H4, H5, and H6 are set according to the teacher's need so proper actions will occur in routine 17000.

20000-20920 PRINT/CHANGE ID NUMBERS AND NAMES
Prints all names and ID numbers when called from Instructor's section and asks for changes. X9 is ued to indicate whether text lines 20170-20260 have been displayed (set to 1). X1 indicates to other routines where to insert new or replacement entry.

21000-21090 ENTER ID NUMBERS
Inputs ID number and inserts into array A3 at location X1.

22000-22130 ENTER NAMES
Inputs name and inserts into array A7$ at location X1.

23000-23120, 24000-24120, and 25000-25170 SORT ID NUMBERS
Sort routines for array A1. Contains a combined tree/heap sort algorithm. F5 is the count of ID numbers. Called only from the Initialization section. Exchanges of ID numbers also result in corresponding changes in array A2 so the indices still point to the correct name.

26000-26160 INITIALIZE ARRAYS A3, A7$, B6$, D, and D9
Called from Initialization section prior to entry of user information. Also sets initial value of E6 to 0.

27000-27060 INITIALIZE ARRAYS A1, A2, A5$, and A6
Called from Initialization section after entry of user information. Empty locations are initialized to be sure the arrays are full for I/O from data file.

28000-28180 CLEAR ARRAYS B1, B2, B3, B5, and C
Called from routine 50000 if user changes starting date to remove all old data associated with replaced dates in B4$.

29000-29140 SEARCH ORIGINAL ID NUMBERS
Binary search for C1. If located, C1$ is set to the corresponding name in A5$.

30000-30140 SEARCH ORIGINAL NAMES
Linear search for C1$. If located, C1 is set to the corresponding ID number in A1.

31000-31080 SEARCH ADDITIONAL ID NUMBERS
Linear search for C1. If located, C1$ is set to the corresponding name in A7$.

32000-32080 SEARCH ADDITIONAL NAMES
Linear search for C1$. If found, C1 is set to the corresponding ID number in A3.

33000-33570 PRINT AVAILABILITY DATA
If H7 is greater than 0 then prints only the day which it contains. If H7=0, then prints all K5 days for the chosen type. H8 is one less than the starting row for that type. Hours in A9$ are printed across the top, day abbreviations down the side and X is printed under the appropriate times. Index values 6 through 9 are special in the current version since they reference times (1030, etc.) which require special spacing. Similarly for numbers 7 through 10 on line 33470.

34000-34120 PRINT TIMES AND CODES
If K4=1 prints only times. If K4=0 also prints codes for instructor's use.

35000-35420 CHANGE MESSAGES

Permits the instructor to change the message lines in B$$.

36000-37620 CHANGE AVAILABILITY DATA

Called to enter data into array D or to change it. When called from Instructor's section to make changes, there are three possibilities: if H5=0, then no cancellations are necessary; if H5=1 then cancellations are needed and I1=0 indicates that all appointments on that day of the week must be cancelled; if changing times on a day already available, the appointments on now defunct times must be cancelled. A search is made for the current date, I7$, and the day of the week H9 is determined. Using H9, X3 is set to index the first date of that week which has not passed and appropriate cancellations are performed using routines 16000 and 17000. If the instructor wishes to see the cancellations, the value of H4 is set.

38000-38240 PRINT CANCELLATIONS

H8 is the first location in C for the chosen appointment type. I3 is set to the next free location in that block of rows. If there are no cancellations, then I3=H8 on exit.

39000-40490 ENTER CANCELLATIONS

I3 as set by the preceding routine is used as an index into array C for adding new dates and times and the routines 16000 and 17000 are called for cancelling scheduled appointments.

41000-41090 PRINT UNAVAILABLE DATES

I8 is the next free slot in B5, so 1 to I8-1 are all recorded unavailable dates.

42000-42070 ENTER UNAVAILABLE DATES

Inputs new dates and cancels appointments if necessary.

44000-44980 EXAMINE AN APPOINTMENT DATE AND TIME

Tests an input date for validity (is it in B4$), determines day of the week for the date and checks to see if the desired appointment type is available on that day, inputs hour and checks to see if the type is available on that hour, tests input date against the list of unavailable dates in B5, tests input date and time against cancellations in C, and locates and counts appointments already recorded for that date and time. If the user is the instructor, routine 17000 prints the names and this routine prints the total number as well as their location and varieties of the last appointment type, if needed. If the user is a student and D2 indicates that the maximum number of appointments have been scheduled for that time, J2$ returns with FAILURE; otherwise, J2$ will return with SUCCESS. For the last type, the routine will stop with the first column of B1 and B2 which is not filled (D5=I2) and the routine returns with J2 showing SUCCESS.

45000-46010 MAKE AN APPOINTMENT

Appointment type is C5 and variety for last type is D5. This is checked to be sure that the type is available (D9 is greater than zero for subscript C5). Date is input into C7$ and tested to be sure it is greater than the current date, I7$, and routine 44000 performs remaining validity tests (C6 for the time is input in this routine). If it returns with J2$ as FAILURE, then the student is given a chance to try a new date and time for the same

type of appointment. If J2$ is SUCCESS, then D6 is the column of B1 and B2 used to record the apointment. The routine then checks the student's other appointments to see if there is a conflict or if the student already has scheduled the same type. If so, it is displayed and the student can replace it or try again. If replacement is chosen, the date of the old appointment J5 is compared with the current date and the message to inform the teacher is printed if the difference is less than or equal to 1. Line 45700 and X1 are necessary to check the last type of appointment since D6 might be a different column number.

47000-47310 PRINT APPOINTMENTS ON SPECIFIC DATE AND TIME
Inputs appointment type and date and uses routine 44000 to input hour and print appointments.

48000-48830 PRINT APPOINTMENTS FOR A RANGE OF DATES
Starting date for the range must be greater than the current date for students, but not for instructor. Routine 17000 is called to print names for the instructor, but not for students. J1 is the final date and if the range passes it, the message on line 48810 is printed.

49000-49530 PRINT APPOINTMENTS FOR SPECIFIC STUDENT
Student is given an opportunity to cancel those appointments which have not passed yet. Again, the message to inform the instructor is printed if the student cancels an appointment less than 1 day in advance.

50000-50230 CHANGE STARTING DATE
After date is input, routine 12000 is called to construct all dates in B4$ and routine 28000 clears old appointment information.

51000-52040 CHANGE FINAL DATE
J1 is set to the index of the date if found. If the date is a weekend date in the current version, the preceding Friday and following Monday dates are displayed and the instructor can choose one or select another final date. If the new date is earlier than the old, then routines 16000 and 17000 are used to cancel appointments if necessary.

53000-53040 RECREATE DATA FILE
If T=1, the data file is empty and the program has not been fully initialized. Otherwise, the current data is output to disk.

Variables Used

The following list shows the variables used in the Appointment System and their functions.

Name	Description
A1(F7)	ID numbers of the original class (entered at initialization)
A2(F7)	Indices into A5$ of names associated with ID numbers in A1
A3(F9)	ID numbers of additional students
A4	Maximum number of columns for B1, B2. A4=G2+(K1-1)
A5$(F7)	Names of original class

A6(F7)	Indices into A1 of ID numbers associated with names in A5$
A7$(F9)	Names of additional students
A9$(H2)	Times when appointments may be made available
B1(D1,A4)	Indices into B4$ of dates of recorded appointments
B2(D1,A4)	Indices into A9$ of times of recorded appointments
B3(D1,K1)	Indices into D9$ of activity varieties for recorded appointments of the last type
B4$(G3)	Dates (strings of the form MM/DD) for total length of continuous program operation
B5(F9)	Indices into B4$ of dates unavailable for any appointments
B6$(E5)	Instructor to students message lines
B7$(K5)	Names of the days of the week on which appointments may be made available
B8(12)	Number of days in each month
B9(H2)	Used in routine 17000 to hold count of number of appointments recorded at each available time. Locations are matched with locations in A9$
C(J9,2)	Cancellations for each appointment type. Column 1 holds indices into B4$ for date and column 2 holds code for times of day
C1	Student ID number
C1$	Student name
C2	Row index into B1, B2 and B3 of student C1/C1$
C5	Input row index into D7$
C6	Row index into A9$ for appointment time
C7$	Input date
C8	Row index into B4$ for appointment date
C9	Indicates to subroutines the source of the call: C9=1 from Student Directory, C9=2 from Instructor Directory, C9=3 from Initialization Section
D(I9,I4)	Available days and times for each type of appointment. Column 1 holds 1 or 0 to indicate that the day is available or unavailable and columns 2-I4 match with locations in A9$ and hold a 1 or 0 to indicate whether each time is available or unavailable
D1	Maximum number of rows for B1, B2 and B3. D1=F7+F8
D2	Count of number of appointments for a specific date and time
D5	Row index into D9$ for activity variety for last appointment type
D6	Column index for B1 and B2. If C5 is not equal to G2 then D6=C5, else D6 is one of the location columns for the last appointment type. Corresponding column in B3 is D6-(G2-1)
D7$	Appointment type names
D9$	Activity varieties for last appointment type
D9(G2)	Maximum number of simultaneous appointments allowed for each type
E2$	FOUND/NOTFOUND indicator

E3(H2)	Used to copy a current row of D, columns 2-I4, to compare with the same row after update
E5	Maximum number of rows of B6$
E6	Number of rows of B6$ in use
F5	Number of rows of A1, A2, A5$, and A6 in use
F6	Number of rows of B1, B2, and B3 in use
F7	Maximum number of rows of A1, A2, A5$, and A6
F8	Maximum number of rows of A3 and A7$
F9	Maximum number of rows of B5
G1	Maximum number of rows of D8$
G2	Maximum number of rows of D7$ and D9
G3	Maximum number of rows of B4$. G3=17*K5
G4	Number of rows of A3 and A7$ in use
G8	Low index of binary search of B4$ in routine 14000
G9	High index of binary search of B4$ in routine 14000
H2	Maximum number of rows of A9$, B9 and E3
H3	Used to indicate whether any appointments have been located by routine 17000. If H3=1 then appointments have been found; otherwise H3=0
H4	Indicates to routine 17000 whether to print (value of 1) or not print (value of 0) student names associated with located appointments
H5	Indicates to routine 17000 whether to cancel (value of 1) or not cancel (value of 0) located appointments
H6	Indicates to routine 17000 whether to look for appointments only by date, using just B1 (value of 0) or by date and time using B1 and B2 (value of 1)
H7	Indicates to routine 33000 whether to print availability information for all rows of D (days) for selected appointment type (value of 0) or only for one row using the value of H7, when it is greater than 0, to access the row
H8	Used to calculate the index of the block of rows for selected appointment type in either C or D
H9	Index into B7$; used as day of the week indicator as assigned in routine 14000
I1	Used in routine 36000 to indicate whether instructor has made an available day unavailable (value of 0) or only made certain available times now unavailable (value of 1)
I2	Index into D8$; used in routine 17000 to store activity variety for last appointment type
I3	Indicates next free row, in the block of rows of selected appointment type, within which a new cancellation may be entered. If there are no cancellations for selected type, then I3=H9; if the maximum number already has been entered, then I3=H9+I6. The value of I3 is set by routine 33000 and used by routine 36000
I4	Maximum number of columns in D. I4=H2+1
I5	Indicates to routine 11000 whether to search for ID number (value of 0) or name (value of 1)

I6	Maximum number of cancellations per appointment type
I7$	Set on each program activation to date (MM/DD) of current day of use
I8	Indicates next free slot in B5. When B5 is empty, I8=1, when full, I8=F9+1
I9	Indicates to routine 14000 whether to search B4$ only up to instructor-set final appointment date, i.e. 1-J1 (value of 1), or all of B4$, 1-G3 (value of 2)
J1	Row number in B4$ of final appointment date
J2$	SUCCESS/FAILURE indicator
J3	Number of month of starting date of current semester
J4	Number of day of starting date of current semester
J5	If routine 14000 can locate current date, I7$, in B4$, then J5 is set to its index. If I7$ cannot be located then the program is being used on a day not used for appointments and J5 is set to the value of G9 which, after binary search, will indicate the index in B4$ of the date of the next Monday
J8	Maximum number of rows in C. J8=G2*I6
J9	Maximum number of rows in D. J9=G2*K5
K1	Maximum number of columns in B3. Equal to the number of locations used for the last appointment type
K2	Used in Initialization section to indicate from where the section was called. If K2=0 then the section was called from Signon and, therefore, the data file is empty. If K2=1 then the call was from Instructor Directory and the file is not empty.
K3	Indicates to routine 13000 whether to print only the appointment type names (value of 0) or also to print the activity varieties for the last type (value of 1)
K4	Indicates to routine 34000 whether to print only the list of times on which appointments may be made (value of 1) or also to print the time codes for instructor use (value of 0)
K5	Maximum number of rows in B7$. Maximum number of days of the week on which appointments may be made
T	Indicates status of the program. T=0 means the program is open for student use, T=1 if data file is empty and the program is open to the teacher with password and then only for access to the Initialization section, or T=2 if the final appointment date has passed, but the data file is full and the program is open to the teacher with password for access to the Instructor Directory
X_,Y_	Any variables beginning with X or Y are temporary for such things as reading input, loop counters, etc.

```
!WAPP LISTING
00100 G2 = 6
00110 K1 = 3
00120 E5 = 10
00130 F7 = 50
00140 F8 = 10
00150 F9 = 10
00160 B1 = 2
00170 K5 = 5
00180 H2 = 23
00190 I4 = H2  + 1
00200 I6 = 10
00210 D1 = F7 + F8
00220 A4 = G2 + (K1 - 1)
00230 J8 = G2 * I6
00235 G3 = 17 * K5
00240 J9 = G2 * K5
00250 DIM A1(50),A2(50),A3(10),A5$(50),A6(50),A7$(10),B1(60,8),B2(60,8)
00260 DIM B3(60,3),B4$(85),B5(10),B6$(10),B9(23),C(60-2),D(30,24)
00270 DIM D7$(6),D8$(2),D9(6),E3(23)
00280 DIM A9$(23),B7$(5),B8(12)
00290 DATA '8','830','9','930','10','1030','11','1130','1','130','2'
00300 DATA '230','3','330','4','430','5','530','6','630','7','730'
00310 DATA '8'
00320 DATA 31,28,31,30,31,30,31,31,30,31,30,31
00330 DATA 'MONDAY','TUESDAY','WEDNESDAY','THURSDAY','FRIDAY'
00340 DATA 'APPOINTMENT WITH INSTRUCTOR','APPOINTMENT FOR A TEST'
00350 DATA 'APPOINTMENT TO  VIEW FILM','APPOINTMENT TO VIEW VIDEOTAPE'
00360 DATA 'APPOINTMENT FOR MIG WELDING ONLY'
00370 DATA 'APPOINTMENT FOR STICK OR TIG WELDING'
00380 DATA 'STICK WELDING','TIG WELDING'
00390 MAT READ A9$,B8,B7$
00400 T = 0
00410 FILE#1='AVIDAT2'
00420 RESTORE#1
00430 IF END #1 GOTO 00510
00440 MAT READ#1, A1,A2,A3,A5$,A6,A7$,B1,B2,B3,B4$,B5,B6$
00450 MAT READ#1, B9,C,D,D7$,D8$,D9
00460 READ#1, I8,J1,E6,F5,F6,G4
00470 GOSUB 10000
00480 IF J2$ = 'SUCCESS' GOTO 00540
00490 T = 2
00500 GOTO 00520
00510 T = 1
00520  PRINT 'PROGRAM NOT OPEN TO STUDENTS'
00530 GOTO 00930
00540 PRINT 'WELCOME TO THE APPOINTMENT PROGRAM'
00550 PRINT "DO  YOU WISH TO SIGNON WITH YOUR NAME(Y/N)";
00560 INPUT Y1$
00570 IF Y1$ = 'Y' GOTO 00610
00580 IF Y1$ = 'N' GOTO 00850
00590 PRINT 'INVALID RESPONSE. TRY AGAIN'
00600 GOTO 00550
00610 PRINT 'ENTER NAME';
00620 INPUT  C1$
00630 IF C1$ = 'INSTR' GOTO 00930
00640 C9 = 1
00650 I5 = 1
00660 GOSUB 11000
00670 IF E2$ = 'FOUND' GOTO 05000
00680 PRINT 'INPUT NAME NOT LOCATED. NAME MUST BE ENTERED EXACTLY AS'
00690 PRINT 'RECORDED IN THIS PROGRAM. IF YOU ARE UNCERTAIN OF HOW NAME'
00700 PRINT 'HAS BEEN RECORDED YOU SHOULD SIGNON WITH YOUR ID NUMBER.'
00710 PRINT 'DO YOU WISH TO'
00720 PRINT '  1) TRY TO  SIGNON WITH YOUR NAME'
00730 PRINT '  2) TRY TO  SIGNON WITH YOUR ID NUMBER'
00740 PRINT '  3) GIVE UP AND EXIT PROGRAM'
00750 PRINT 'ENTER THE NUMBER OF YOUR CHOICE';
00760 INPUT X2
00770 IF X2 = 1 GOTO 00610
00780 IF X2 = 2 GOTO 00850
00790 IF X2 = 3 GOTO 00820
00800 PRINT 'INVALID ENTRY. TRY AGAIN.'
00810 GOTO 00710
00820 PRINT 'CONTACT YOUR INSTRUCTOR TO HAVE YOUR CORRECT NAME AND'
00830 PRINT 'ID NUMBER ENTERED INTO THIS PROGRAM.'
00840 GOTO 53000
00850 PRINT 'SIGNON WITH ID NUMBER';
00860 INPUT C1
00870 C9 = 1
00880 I5 = 0
00890 GOSUB 11000
00900 IF E2$ = 'FOUND' GOTO 05000
00910 PRINT 'ENTERED ID NUMBER NOT LOCATED.'
00920 GOTO 00710
00930 PRINT 'ENTER PASSWORD OR BYE TO EXIT PROGRAM'
00940 INPUT Y1$
00950 IF Y1$  = 'INSTAVI' GOTO 00990
00960 IF Y1$ = 'BYE' GOTO 53000
00970 PRINT 'INVALID RESPONSE. TRY AGAIN.'
00980 GOTO 00930
00990 C9 = 2
01000 IF T = 0 GOTO 06000
01010 ON T GOTO 01020,01140
01020 PRINT 'DATA FILE IS EMPTY. PROGRAM MUST BE RE-INITIALIZED.'
01030 PRINT 'DO YOU WISH TO'
01040 PRINT '  1)INITIALIZE THE PROGRAM'
01050 PRINT '  2)EXIT THE PROGRAM'
01060 PRINT 'ENTER NUMBER';
01070 INPUT X2
01080 IF X2 = 1 GOTO 01120
01090 IF X2 = 2 GOTO 53000
01100 PRINT 'INVALID ENTRY. TRY AGAIN.'
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01110 GOTO 01030
01120 C9 = 3
01130 GOTO 02000
01140 PRINT 'THE FINAL APPOINTMENT DATE HAS PASSED.  STUDENT ACCESS'
01150 PRINT 'NO LONGER PERMITTED.'
01160 GOTO 06000
02000 K2 = 0
02010 IF C9 = 3 GOTO 02040
02020 K2 = 1
02030 C9 = 3
02040 PRINT
02050 PRINT TAB(28);'INITIALIZATION SECTION'
02060 PRINT
02070 PRINT 'INITIALIZATION REQUIRES FOLLOWING INFORMATION'
02080 PRINT '1) STUDENT ID NUMBERS AND NAMES IN ALPHABETICAL ORDER'
02090 PRINT '2) NAMES OF THE APPOINTMENT TYPES (SUGGESTED NAMES PROVIDED)'
02100 PRINT '3) NUMBER OF PEOPLE ALLOWED TO MAKE SIMULTANEOUS APPOINTMENTS'
02110 PRINT '     FOR EACH APPOINTMENT TYPE'
02120 PRINT '4) DAYS AND HOURS WHEN EACH APPOINTMENT TYPE IS TO BE'
02130 PRINT '     AVAILABLE'
02140 PRINT '5) DATE OF THE FIRST MONDAY OF THE SEMESTER.'
02150 PRINT
02160 PRINT 'FOLLOWING INFORMATION IS NOT REQUIRED BUT MAY BE ENTERED'
02170 PRINT 'DURING INITIALIZATION'
02180 PRINT '1) DATE OF THE FINAL APPOINTMENT DAY (IF EARLIER THAN THE'
02190 PRINT '     DEFAULT FINAL DAY)'
02200 PRINT '2) DATES OF ANY DAYS UNAVAILABLE FOR ANY APPOINTMENTS'
02210 PRINT '3) DATES AND TIMES OF ANY SPECIFIC CANCELLATIONS OF NORMALLY'
02220 PRINT '     AVAILABLE TIMES FOR PARTICULAR APPOINTMENT TYPES.'
02230 PRINT
02240 PRINT 'ARE YOU READY TO INITIALIZE THE PROGRAM(Y/N)';
02250 INPUT Y1$
02260 IF Y1$ = 'Y' GOTO 02340
02270 IF Y1$ = 'N' GOTO 02300
02280 PRINT 'INVALID RESPONSE. TRY AGAIN.'
02290 GOTO 02240
02300 IF K2 = 0 GOTO 53000
02310 C9 = 2
02320 GOTO 06000
02340 GOSUB 26000
02350 PRINT
02360 PRINT TAB(25);'STUDENT ID NUMBERS AND NAMES'
02370 PRINT
02380 PRINT 'EACH STUDENT ENTRY REQUIRES THE UNIVERSITY ID NUMBER AND'
02390 PRINT 'A NAME. THE NAMES MUST BE ENTERED IN ALPHABETICAL ORDER.'
02400 PRINT 'ALSO NOTE THAT EACH NAME ENTERED MUST BE UNIQUE. THE FORMAT'
02410 PRINT 'FOR THE ENTRY OF NAMES IS LAST NAME-SPACE-FIRST NAME/INITIAL-'
02420 PRINT '(SPACE-MIDDLE NAME/INITIAL, IF DESIRED OR NECESSARY TO MAKE'
02430 PRINT 'NAME UNIQUE). DO NOT INCLUDE ANY COMMAS, PERIODS, OR OTHER'
02440 PRINT 'PUNCTUATION IN THE NAMES. (EXAMPLE ENTRY: MCCARTHY MARY A)'
02450 PRINT
02460 G4 = 0
```



```
02470 FOR F5 = 1 TO F7
02480 PRINT 'ENTER ID NUMBER. WHEN FINISHED ENTER A ZERO.';
02490 INPUT A1(F5)
02500 IF A1(F5) = 0 GOTO 02780
02510 PRINT 'IS';A1(F5);'CORRECT(Y/N)';
02520 INPUT Y1$
02530 IF Y1$ = 'Y' GOTO 02570
02540 IF Y1$ = 'N' GOTO 02480
02550 PRINT 'INVALID RESPONSE. TRY AGAIN.'
02560 GOTO 02510
02570 A2(F5) = F5
02580 PRINT 'ENTER NAME';
02590 INPUT A5$(F5)
02600 PRINT 'IS ';A5$(F5);' CORRECT(Y/N)';
02610 INPUT Y1$
02620 IF Y1$ = 'Y' GOTO 02660
02630 IF Y1$ = 'N' GOTO 02580
02640 PRINT 'INVALID ENTRY. TRY AGAIN.'
02650 GOTO 02600
02660 NEXT F5
02670 PRINT 'MAXIMUM NUMBER OF ID NUMBERS AND NAMES HAVE BEEN ENTERED WHICH'
02680 PRINT 'PROGRAM CAN STORE AS INITIAL CLASS SIZE (';F5;').  A TOTAL OF'
02690 PRINT F8;'EXTRA NAMES AND NUMBERS CAN BE STORED AS ADDITIONAL STUDENTS.'
02700 PRINT 'DO YOU WISH TO ADD ANY ADDITIONAL ID NUMBERS AND NAMES(Y/N)';
02710 INPUT Y1$
02720 IF Y1$ = 'Y' GOTO 02760
02730 IF Y1$ = 'N' GOTO 02800
02740 PRINT 'INVALID RESPONSE. TRY AGAIN.'
02750 GOTO  02700
02760 GOSUB 20000
02770 GOTO 02800
02780 GOSUB 27000
02800 GOSUB 23000
02810 FOR X1 = 1 TO F5
02820 X2 = A2(X1)
02830 A6(X2) = X1
02840 NEXT X1
02850 F6 = F5 + G4
02860 PRINT
02870 PRINT TAB(23);'FIRST AND LAST APPOINTMENT DATES'
02880 PRINT
02890 PRINT 'PROGRAM REQUIRES ENTERING THE MONTH AND DAY NUMBER OF THE'
02900 PRINT 'FIRST MONDAY OF THE SEMESTER. IT WILL CALCULATE THE DATES'
02910 PRINT 'OF ALL OF THE APPOINTMENT DAYS FOR 17 WEEKS FROM THAT DATE'
02920 PRINT 'AND WILL USE THE DATE OF THE FRIDAY OF THE 17TH WEEK AS'
02930 PRINT 'THE DEFAULT FINAL APPOINTMENT DAY.  YOU WILL BE GIVEN THE'
02940 PRINT 'OPTION OF ENTERING AN EARLIER FINAL DATE.'
02950 GOSUB 50000
02960 PRINT
02970 PRINT 'THE DATES CURRENTLY IN EFFECT ARE STARTING: ';B4$(1)
02980 PRINT 'AND FINAL: ';B4$(J1)
02985 GOSUB 10000
```

```
02986 PRINT 'TODAY'S DATE IS ';I7$
02990 PRINT 'DO YOU WISH TO ENTER AN EARLIER FINAL DATE(Y/N)';
03000 INPUT Y1$
03010 IF Y1$ = 'Y' GOTO 03050
03020 IF Y1$ = 'N' GOTO 03060
03030 PRINT 'INVALID ENTRY. TRY AGAIN.'
03040 GOTO 02990
03050 GOSUB 51000
03060 PRINT
03070 PRINT TAB(26);'NAMES OF APPOINTMENT TYPES'
03080 MAT READ D7$,D8$
03090 K3 = 1
03100 GOSUB 13000
03110 PRINT 'DO YOU WISH TO RETAIN ALL OF THESE NAMES(Y/N)';
03120 INPUT Y1$
03130 IF Y1$ = 'Y' GOTO 03790
03140 IF Y1$ = 'N' GOTO  03170
03150 PRINT 'INVALID INPUT. TRY AGAIN.'
03160 GOTO 03110
03170 PRINT
03180 PRINT 'IF AN APPOINTMENT TYPE IS NOT TO BE USED THIS SEMESTER THEN'
03190 PRINT 'PLEASE NAME IT 'UNAVAILABLE', OTHERWISE BEGIN ALL NAMES WITH
03200 PRINT 'THE WORD 'APPOINTMENT'.'
03210 FOR X1 = 1 TO G2 - 1
03220 PRINT 'CURRENT NAME IS ';D7$(X1)
03230 PRINT 'DO YOU WISH TO RETAIN IT(Y/N)'
03240 INPUT Y1$
03250 IF Y1$ = 'Y' GOTO 03390
03260 IF Y1$ = 'N' GOTO 03290
03270 PRINT 'INVALID RESPONSE. TRY AGAIN.'
03280 GOTO 03230
03290 PRINT 'ENTER NEW NAME';
03300 INPUT Y2$
03310 PRINT 'NEW NAME IS ';Y2$
03320 PRINT 'IS THAT CORRECT(Y/N)';
03330 INPUT Y1$
03340 IF Y1$ = 'Y' GOTO 03380
03350 IF Y1$ = 'N' GOTO 03290
03360 PRINT 'INVALID ENTRY. TRY AGAIN.'
03370 GOTO 03310
03380 D7$(X1) = Y2$
03390 NEXT X1
03400 PRINT
03410 PRINT 'THERE ARE';G1;'VARIETIES FOR THE LAST APPOINTMENT TYPE AND'
03420 PRINT 'RENAMING THE TYPE MAY REQUIRE RENAMING THE VARIETIES ALSO.'
03430 PRINT 'CURRENT NAME IS ';D7$(G2)
03440 PRINT 'DO YOU WISH TO RETAIN THAT NAME(Y/N)';
03450 INPUT Y1$
03460 IF Y1$ = 'Y' GOTO 03800
03470 IF Y1$ = 'N' GOTO 03500
03480 PRINT 'INVALID RESPONSE. TRY AGAIN'
03490 GOTO 03430
```



```
03500 PRINT 'ENTER NEW NAME';
03510 INPUT Y2$
03520 PRINT 'NEW NAME IS ';Y2$
03530 PRINT 'IS THAT CORRECT(Y/N)'
03540 INPUT Y1$
03550 IF Y1$ = 'Y' GOTO 03590
03560 IF Y1$ = 'N' GOTO 03500
03570 PRINT 'INVALID ENTRY. TRY AGAIN.'
03580 GOTO 03520
03590 D7$(G2) = Y2$
03600 PRINT 'THE VARIETIES FOR THIS APPOINTMENT TYPE ARE'
03610 FOR X1 =  1 TO G1
03620 PRINT D8$(X1)
03630 PRINT 'DO YOU WISH TO RETAIN NAME(Y/N)';
03640 INPUT Y1$
03650 IF Y1$ = 'Y' GOTO 03780
03660 IF Y1$ = 'N' GOTO 03690
03670 PRINT 'INVALID ENTRY. TRY AGAIN.'
03680 GOTO 03630
03690 PRINT 'ENTER NEW NAME';
03700 INPUT Y2$
03710 PRINT 'IS ';Y2$;' CORRECT(Y/N)'
03720 INPUT Y1$
03730 IF Y1$ = 'Y' GOTO 03770
03740 IF Y1$ = 'N'  GOTO 03690
03750 PRINT 'INVALID RESPONSE. TRY AGAIN.'
03760 GOTO 03710
03770 D8$(X1) = Y2$
03780 NEXT X1
03790 PRINT
03800 PRINT TAB(18);'NUMBER ALLOWED FOR SIMULTANEOUS APPOINTMENTS'
03810 PRINT
03820 PRINT 'IF AN APPOINTMENT TYPE IS OPEN FOR APPOINTMENTS THEN YOU'
03830 PRINT 'SHOULD ENTER THE NUMBER OF PEOPLE WHO MAY MAKE AN APPOINTMENT'
03840 PRINT 'ON THE SAME DATE AND HOUR. IF, IN THE PREVIOUS SECTION, YOU'
03850 PRINT 'MADE AN APPOINTMENT TYPE UNAVAILABLE THEN YOU NEED ENTER'
03855 PRINT 'NOTHING, SINCE THE DEFAULT VALUE FOR THE NUMBER OF PEOPLE'
03856 PRINT 'ALLOWED IS ZERO.'
03860 PRINT
03890 GOSUB 18000
03900 PRINT
03910 PRINT TAB(27);'AVAILABLE DAYS AND HOURS'
03920 PRINT
03930 PRINT 'YOU WILL NOW BE ASKED TO INDICATE FOR EACH DAY'
03940 PRINT 'OPEN FOR APPOINTMENTS, THE TIMES AT WHICH APPOINTMENTS'
03950 PRINT 'ARE ALLOWED FOR EACH OF THE AVAILABLE APPOINTMENT TYPES.'
03960 H5 = 0
03970 PRINT
03980 PRINT 'IN WHAT FOLLOWS A DAY IS CONSIDERED UNAVAILABLE FOR'
03990 PRINT 'APPOINTMENTS BY DEFAULT SO THAT YOU NEED ONLY ENTER THE'
04000 PRINT 'DAYS WHICH ARE TO BE AVAILABLE FOR APPOINTMENTS.'
04010 PRINT
```

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04020 FOR C5 = 1 TO G2
04030 IF D9(C5) = 0 GOTO 04220
04040 PRINT 'FOR ';D7$(C5)
04050 PRINT 'ENTER NUMBER OF THE DAY WHICH IS TO BE OPEN FOR APPOINT-'
04060 PRINT 'MENTS. (MONDAY=1,TUESDAY=2,...). ENTER ZERO WHEN FINISHED.'
04070 INPUT H7
04080 IF H7 = 0 GOTO 04220
04090 IF H7 >= 1 AND H7 <= K5 GOTO 04120
04100 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 0 TO';K5
04110 GOTO 04050
04120 PRINT 'YOU HAVE CHOSEN A ';B7$(H7)
04130 PRINT 'IS THAT CORRECT(Y/N)';
04140 INPUT Y1$
04150 IF Y1$ = 'Y' GOTO 04190
04160 IF Y1$ = 'N' GOTO 04050
04170 PRINT 'INVALID RESPONSE. TRY AGAIN.'
04180 GOTO 04120
04190 H8 = (C5 - 1) * K5
04200 GOSUB 36000
04210 GOTO 04040
04220 NEXT C5
04230 PRINT
04240 PRINT 'THE INFORMATION REQUIRED FOR INITIALIZATION HAS NOW BEEN'
04250 PRINT 'ENTERED.'
04260 PRINT 'YOU MAY NOW USE THE OPTION OF ENTERING THE DATES OF ANY'
04270 PRINT 'DAYS WHICH ARE UNAVAILABLE FOR ANY APPOINTMENTS.'
04280 PRINT 'DO YOU WISH TO ENTER ANY SUCH DATES(Y/N)';
04290 INPUT Y1$
04300 IF Y1$ = 'Y' GOTO 04340
04310 IF Y1$ = 'N' GOTO 04350
04320 PRINT 'INVALID RESPONSE. TRY AGAIN.'
04330 GOTO 04280
04340 GOSUB 42000
04350 PRINT
04360 PRINT 'AT THIS TIME YOU MAY ENTER THE DATES AND TIMES OF ANY'
04370 PRINT 'SPECIFIC CANCELLATIONS OF NORMALLY AVAILABLE TIMES FOR'
04380 PRINT 'ANY OF THE APPOINTMENT TYPES.'
04390 PRINT 'DO YOU WISH TO ENTER ANY SUCH CANCELLATIONS(Y/N)'
04400 INPUT Y1$
04410 IF Y1$ = 'Y' GOTO 04450
04420 IF Y1$ = 'N' GOTO 04590
04430 PRINT 'INVALID ENTRY. TRY AGAIN.'
04440 GOTO 04390
04450 FOR C5 = 1 TO G2
04460 IF D9(C5) = 0 GOTO 04580
04470 PRINT 'DO YOU WISH TO ENTER ANY CANCELLATION DATES'
04480 PRINT 'FOR ';D7$(C5);' (Y/N)';
04500 INPUT Y1$
04510 IF Y1$ = 'Y' GOTO 04550
04520 IF Y1$ = 'N' GOTO 04580
04530 PRINT 'INVALID RESPONSE. TRY AGAIN.'
04540 GOTO 04470
```



```
04550 H8 = 1 + (C5 - 1) * I6
04560 I3 = H8
04570 GOSUB 39000
04580 NEXT C5
04590 PRINT
04600 PRINT
04605 T = 0
04610 PRINT 'DO YOU NOW WISH TO'
04620 PRINT '  1) GO TO INSTRUCTOR'S DIRECTORY'
04630 PRINT '  2) EXIT THE PROGRAM'
04640 PRINT 'ENTER NUMBER OF YOUR CHOICE.';
04650 INPUT X1
04660 IF X1 = 1 GOTO 04700
04670 IF X1 = 2 GOTO 53000
04680 PRINT 'INVALID RESPONSE. TRY AGAIN.'
04690 GOTO 04610
04700 C9 = 2
04710 GOTO 06000
05000 PRINT
05010 IF E6 = 0 GOTO 05080
05020 PRINT TAB(35);'GREETINGS'
05030 PRINT 'HERE ARE THE LATEST COMMUNICATIONS FROM YOUR INSTRUCTOR:'
05040 FOR X1 = 1 TO E6
05050 PRINT B6$(X1)
05060 NEXT X1
05070 PRINT
05080 PRINT
05090 PRINT TAB(31);'STUDENT DIRECTORY'
05100 PRINT
05110 PRINT TAB(32);'GENERAL OPTIONS'
05120 PRINT '1) REVIEW APPOINTMENT INFORMATION/MAKE AN APPOINTMENT'
05130 PRINT '2) REVIEW/CANCEL YOUR PREVIOUSLY MADE APPOINTMENTS'
05140 PRINT '3) EXIT THE PROGRAM.'
05150 PRINT 'ENTER THE NUMBER OF YOUR CHOICE';
05160 INPUT X1
05170 IF X1 >= 1 AND X1 <= 3 GOTO 05200
05180 PRINT 'INVALID RESPONSE. ENTER A NUMBER FROM 1 TO 3.'
05190 GOTO 05150
05200 ON X1 GOTO 05210,05890,53000
05210 PRINT
05220 PRINT
05230 PRINT TAB(30);'APPOINTMENT OPTIONS'
05240 PRINT '1) REVIEW WHEN APPOINTMENTS ARE AVAILABLE'
05250 PRINT '2) SEE A LISTING OF ALREADY RESERVED TIMES FOR'
05260 PRINT '     A RANGE OF DAYS'
05270 PRINT '3) ATTEMPT TO MAKE AN APPOINTMENT'
05280 PRINT '4) GO BACK TO GENERAL OPTIONS'
05290 PRINT '5) EXIT THE PROGRAM.'
05300 PRINT 'ENTER THE NUMBER OF YOUR CHOICE';
05310 INPUT X1
05320 IF X1 >= 1 AND X1 <= 5 GOTO 05350
05330 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 1 TO 5'
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05340 GOTO 05300
05350 ON X1 GOTO 05360,05750,05870,05110,53000
05360 PRINT
05370 PRINT
05380 PRINT TAB(27);"AVAILABILITY INFORMATION"
05390 PRINT
05400 PRINT "YOUR OPTIONS ARE"
05410 PRINT "1) SEE A LISTING OF DATES UNAVAILABLE FOR ANY APPOINTMENTS"
05420 PRINT "2) SEE A LISTING OF DAYS AND TIMES WHEN APPOINTMENTS ARE"
05430 PRINT "    ALLOWED"
05440 PRINT "3) SEE A LISTING OF SPECIAL CANCELLATIONS FOR EACH"
05450 PRINT "    APPOINTMENT TYPE"
05460 PRINT "ENTER ONE OF ABOVE NUMBERS OR A ZERO WHEN FINISHED";
05470 INPUT X1
05480 IF X1 = 0 GOTO 05210
05490 IF X1 >= 1 AND X1 <= 3 GOTO 05520
05500 PRINT "INVALID RESPONSE. ENTER NUMBER FROM 0 TO 3."
05510 GOTO 05460
05520 IF X1 <> 1 GOTO 05550
05530 GOSUB 41000
05540 GOTO 05400
05550 K3 = 0
05560 GOSUB 13000
05570 PRINT "ENTER NUMBER OF THE TYPE ABOUT WHICH YOU WISH THE"
05580 PRINT "INFORMATION. ENTER A ZERO WHEN FINISHED.";
05590 INPUT C5
05600 IF C5 = 0 GOTO 05400
05610 IF C5 >= 1 AND C5 <= G2 GOTO 05640
05620 PRINT "INVALID ENTRY. TRY AGAIN."
05630 GOTO 05570
05640 IF D9(C5) <> 0 GOTO 05670
05650 PRINT "SORRY, BUT THAT APPOINTMENT TYPE IS NOT AVAILABLE."
05660 GOTO 05550
05670 IF X1 = 3 GOTO 05720
05680 H8 = (C5 - 1) * K5
05690 H7 = 0
05700 GOSUB 33000
05710 GOTO 05550
05720 H8 = 1 + (C5 -1) * I6
05730 GOSUB 38000
05740 GOTO 05550
05750 PRINT
05760 K3 = 0
05770 GOSUB 13000
05780 PRINT "ENTER NUMBER OF THE TYPE YOU ARE INTERESTED IN. WHEN"
05790 PRINT "FINISHED ENTER A ZERO.";
05800 INPUT C5
05810 IF C5 = 0 GOTO 05210
05820 IF C5 >= 1 AND C5 <= G2 GOTO 05850
05830 PRINT "INVALID RESPONSE. TRY AGAIN."
05840 GOTO 05780
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05850 IF D9(C5) > 0 GOTO 05853
05851 PRINT "THAT APPOINTMENT TYPE IS NOT AVAILABLE THIS SEMESTER."
05852 GOTO 05780
05853 GOSUB 48000
05860 GOTO 05760
05870 GOSUB 45000
05880 GOTO 05210
05890 GOSUB 49000
05900 GOTO 05100
06000 PRINT
06010 PRINT
06020 PRINT TAB(29);"INSTRUCTOR DIRECTORY"
06030 PRINT
06040 PRINT TAB(32);"GENERAL OPTIONS"
06050 PRINT
06060 PRINT "1)INITIALIZE PROGRAM FOR CURRENT SEMESTER"
06070 PRINT "2)REVIEW RECORDED STUDENT APPOINTMENTS"
06080 PRINT "3)REVIEW/CHANGE INITIAL CONDITIONS"
06090 PRINT "4)REVIEW/CHANGE DATES OF DAYS UNAVAILABLE FOR"
06100 PRINT "    ANY  APPOINTMENTS"
06110 PRINT "5)REVIEW/CHANGE CANCELLATIONS OF NORMALLY VALID"
06120 PRINT "    DATES AND TIMES"
06130 PRINT "6)REVIEW/CHANGE MESSAGES TO STUDENTS"
06140 PRINT "7)EXIT THE PROGRAM"
06150 PRINT "ENTER NUMBER OF YOUR CHOICE";
06160 INPUT X1
06170 IF X1 >= 1 AND X1 <= 7 GOTO 06200
06180 PRINT "INVALID ENTRY. ENTER A NUMBER FROM 1 TO 7."
06190 GOTO 06150
06200 IF X1 > 1 GOTO 06330
06210 PRINT
06220 PRINT "THIS OPTION SHOULD BE USED ONLY AT THE BEGINNING OF THE"
06230 PRINT "SEMESTER TO ENTER ALL NEW DATA TO SET UP THE PROGRAM."
06240 PRINT "ONCE PROGRAM IS INITIALIZED FOR CURRENT SEMESTER ALL "
06250 PRINT "INITIAL CONDITION INFORMATION MAY BE CHANGED BY SELECTING"
06260 PRINT "OPTION 3 IN THE GENERAL OPTIONS."
06270 PRINT "DO YOU STILL WISH TO ENTER THE INITIALIZATION SECTION(Y/N)"
06280 INPUT Y1$
06290 IF Y1$ = "Y" GOTO 06330
06300 IF Y1$ = "N" GOTO 06030
06310 PRINT "INVALID RESPONSE. TRY AGAIN."
06320 GOTO 06270
06330 ON X1 GOTO 02000,06340,06970,08560,08660,08940,53000
06340 PRINT
06350 PRINT TAB(35);"OPTIONS"
06360 PRINT "1) REVIEW APPOINTMENTS OF A SPECIFIC STUDENT"
06370 PRINT "2) REVIEW APPOINTMENTS ON A SPECIFIC DATE AND TIME"
06380 PRINT "3) REVIEW APPOINTMENTS FOR ALL HOURS FOR A RANGE OF DAYS"
06390 PRINT "4) GO BACK TO GENERAL OPTIONS"
06400 PRINT "5) EXIT PROGRAM."
06410 PRINT "ENTER THE NUMBER OF YOUR CHOICE";
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06420 INPUT X1
06430 IF X1 >= 1 AND X1 <= 5 GOTO 06460
06440 PRINT 'INVALID RESPONSE. TRY AGAIN.'
06450 GOTO 06410
06460 ON X1 GOTO 06470,06830,06850,06030,53000
06470 PRINT
06480 PRINT 'DO YOU WISH TO ENTER THE STUDENT'S NAME(Y/N)'
06490 INPUT Y1$
06500 IF Y1$ = 'Y' GOTO 06540
06510 IF Y1$ = 'N' GOTO 06740
06520 PRINT 'INVALID RESPONSE. ENTER A Y OR N.'
06530 GOTO 06480
06540 PRINT 'ENTER NAME'
06550 INPUT C1$
06560 I5 = 1
06570 GOSUB 11000
06580 IF E2$ = 'FOUND' GOTO 06810
06590 PRINT 'ENTERED NAME NOT FOUND. NAME MUST BE ENTERED EXACTLY'
06600 PRINT 'AS RECORDED IN THIS PROGRAM.'
06610 PRINT 'TO SEE A LISTING OF RECORDED ID NUMBERS AND NAMES YOU'
06620 PRINT 'CAN USE OPTION 3 IN THE GENERAL OPTIONS.'
06630 PRINT 'WOULD YOU LIKE TO'
06640 PRINT '1) ENTER ID NUMBER'
06650 PRINT '2) ENTER NAME'
06660 PRINT '3) GO BACK TO OPTIONS FOR REVIEWING APPOINTMENTS.'
06670 PRINT 'ENTER NUMBER OF YOUR CHOICE'
06680 INPUT X1
06690 IF X1 >= 1 AND X1 <= 3 GOTO 06720
06700 PRINT 'INVALID ENTRY. ENTER NUMBER FROM 1 TO 3.'
06710 GOTO 06670
06720 ON X1 GOTO 06730,06540,06350
06730 PRINT
06740 PRINT 'ENTER ID NUMBER'
06750 INPUT C1
06760 I5 = 0
06770 GOSUB 11000
06780 IF E2$ = 'FOUND' GOTO 06810
06790 PRINT 'ENTERED ID NUMBER NOT FOUND.'
06800 GOTO 06610
06810 GOSUB 49000
06820 GOTO 06340
06830 GOSUB 47000
06840 GOTO 06340
06850 PRINT
06860 K3 = 0
06870 GOSUB 13000
06880 PRINT 'ENTER NUMBER OF ONE WHOSE APPOINTMENTS YOU WISH TO'
06890 PRINT 'EXAMINE. ENTER A ZERO WHEN FINISHED.'
06900 INPUT C5
06910 IF C5 >= 0 AND C5 <= 82 GOTO 06940
06920 PRINT 'INVALID RESPONSE. ENTER NUMBER FROM 0 TO'182
06930 GOTO 06880
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06940 IF C5 = 0 GOTO 06340
06941 IF D9(C5) > 0 GOTO 06950
06942 PRINT 'THAT APPOINTMENT TYPE IS NOT AVAILABLE THIS SEMESTER.'
06943 GOTO 06880
06950 GOSUB 48000
06960 GOTO 06860
06970 PRINT
06980 PRINT 'THE FOLLOWING ARE THE INITIAL CONDITIONS:'
06990 PRINT '1) ID NUMBERS AND NAMES'
07000 PRINT '2) STARTING AND FINAL APPOINTMENT DATES'
07010 PRINT '3) NAMES OF THE APPOINTMENT TYPES AND NUMBER OF PEOPLE'
07020 PRINT '    ALLOWED TO MAKE SAME APPOINTMENT FOR EACH TYPE'
07030 PRINT '4) AVAILABLE DAYS AND HOURS FOR EACH APPOINTMENT TYPE.'
07040 PRINT 'ENTER NUMBER OF THE ONE WHICH YOU WISH TO REVIEW/CHANGE--OR'
07050 PRINT 'ENTER ONE OF THE FOLLOWING NUMBERS:'
07060 PRINT '5) GO BACK TO GENERAL OPTIONS'
07070 PRINT '6) EXIT THE PROGRAM.'
07080 PRINT 'ENTER NUMBER'
07090 INPUT X1
07100 IF X1 >= 1 AND X1 <= 6 GOTO 07130
07110 PRINT 'INVALID RESPONSE. ENTER NUMBER FROM 1 TO 6.'
07120 GOTO 07080
07130 ON X1 GOTO 07140,07160,07510,08310,06030,53000
07140 GOSUB 20000
07150 GOTO 06970
07160 PRINT
07170 PRINT 'THE CURRENT STARTING DATE IS '$B4$(1)$' AND THE CURRENT'
07180 PRINT 'FINAL APPOINTMENT DATE IS '$B4$(J1)
07190 PRINT 'DO YOU WISH TO MAKE ANY CHANGES(Y/N)'
07200 INPUT Y1$
07210 IF Y1$ = 'Y' GOTO 07250
07220 IF Y1$ = 'N' GOTO 06970
07230 PRINT 'INVALID RESPONSE. TRY AGAIN.'
07240 GOTO 07190
07250 PRINT
07260 PRINT 'DO YOU WISH TO '
07270 PRINT '1) CHANGE STARTING DATE'
07280 PRINT '2) CHANGE FINAL DATE.'
07290 PRINT 'ENTER NUMBER OF YOUR CHOICE'
07300 INPUT X1
07310 IF X1 >= 1 AND X1 <= 2 GOTO 07340
07320 PRINT 'INVALID ENTRY. ENTER 1 OR 2.'
07330 GOTO 07290
07340 IF X1 = 2 GOTO 07490
07350 PRINT 'NOTE THAT THERE IS NO NEED TO ENTER A NEW STARTING DATE'
07360 PRINT 'UNLESS IT WAS ENTERED INCORRECTLY AT INITIALIZATION. IF A'
07370 PRINT 'NEW STARTING DATE IS ENTERED THEN NOTE THAT PROGRAM WILL'
07380 PRINT 'NO LONGER CONTAIN ANY RECORDED DATA ON APPOINTMENTS, DATES'
07390 PRINT 'UNAVAILABLE FOR ANY APPOINTMENTS OR CANCELLATIONS FOR ANY'
07400 PRINT 'OF THE APPOINTMENT TYPES.'
07410 PRINT 'DO YOU STILL WISH TO ENTER A NEW STARTING DATE(Y/N)'
07420 INPUT Y1$
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07430 IF Y1$ = 'Y' GOTO 07470
07440 IF Y1$  = 'N' GOTO 07160
07450 PRINT 'INVALID RESPONSE. TRY AGAIN.'
07460 GOTO 07410
07470 GOSUB 50000
07480 GOTO 07160
07490 GOSUB 51000
07500 GOTO 07160
07510 PRINT
07520 PRINT 'FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES AND THE'
07530 PRINT 'NUMBER OF PEOPLE ALLOWED TO MAKE AN APPOINTMENT AT SAME TIME:'
07540 PRINT
07550 FOR X1 = 1 TO G2
07560 PRINT X1;') ';D7$(X1);'    ';D9(X1)
07570 NEXT X1
07580 PRINT
07590 PRINT 'HERE ARE THE NAMES OF THE VARIETIES OF THE LAST TYPE:'
07600 PRINT
07610 FOR X1 = 1 TO G1
07620 PRINT X1;') ';D8$(X1)
07630 NEXT X1
07640 PRINT
07650 PRINT 'WOULD YOU LIKE TO MAKE ANY CHANGES(Y/N)';
07660 INPUT Y1$
07670 IF Y1$ = 'Y' GOTO 07710
07680 IF Y1$ = 'N' GOTO 06970
07690 PRINT 'INVALID ENTRY. TRY AGAIN.'
07700 GOTO 07650
07710 PRINT 'DO YOU WANT TO CHANGE'
07720 PRINT '1) APPOINTMENT NAMES'
07730 PRINT '2) THE NUMBER OF PEOPLE ALLOWED AT ONE TIME'
07740 PRINT 'ENTER NUMBER OF YOUR CHOICE';
07750 INPUT X1
07760 IF X1 = 1 GOTO 07800
07770 IF X1 = 2 GOTO 08290
07780 PRINT 'INVALID RESPONSE. ENTER 1 OR 2.'
07790 GOTO 07740
07800 PRINT 'IF AN APPOINTMENT TYPE IS TO BE MADE UNAVAILABLE FOR THIS'
07810 PRINT 'SEMESTER THEN ENTER WORD 'UNAVAILABLE' FOR ITS NAME. IN ALL'
07820 PRINT 'OTHER CASES PLEASE BEGIN NAME WITH WORD 'APPOINTMENT'.'
07830 K3 = 0
07840 GOSUB 13000
07850 PRINT 'USING ABOVE NUMBERS FOR APPOINTMENT TYPES, ENTER NUMBER'
07860 PRINT 'OF ONE YOU WISH TO RENAME. WHEN FINISHED ENTER A ZERO.'
07870 INPUT X1
07880 IF X1 = 0 GOTO 07510
07890 IF X1 >= 1 AND X1 <= G2 GOTO 07920
07900 PRINT 'INVALID RESPONSE. TRY AGAIN.'
07910 GOTO 07830
07920 PRINT 'ENTER NEW NAME';
07930 INPUT Y1$
07940 PRINT 'IS ';Y1$;' CORRECT NAME(Y/N)';
07950 INPUT Y2$
07960 IF Y2$ = 'Y' GOTO 08000
07970 IF Y2$ = 'N' GOTO 07920
07980 PRINT 'INVALID RESPONSE. ENTER Y OR N.'
07990 GOTO 07940
08000 D7$(X1) = Y1$
08010 IF X1 <> G2 GOTO 07830
08020 PRINT 'THE VARIETIES FOR THAT APPOINTMENT TYPE ARE'
08030 FOR X1 = 1 TO G1
08040 PRINT X1;') ';D8$(X1)
08050 NEXT X1
08060 PRINT 'DO YOU WISH TO MAKE ANY CHANGES IN THOSE NAMES(Y/N)';
08070 INPUT Y1$
08080 IF Y1$ = 'Y' GOTO 08120
08090 IF Y1$ = 'N' GOTO 07830
08100 PRINT 'INVALID ENTRY. TRY AGAIN.'
08110 GOTO 08060
08120 PRINT 'ENTER NUMBER OF THE VARIETY YOU WISH TO RENAME. ENTER A'
08130 PRINT 'ZERO WHEN FINISHED.';
08140 INPUT X1
08150 IF X1 = 0 GOTO 07830
08160 IF X1 >= 1 AND X1 <= G1 GOTO 08190
08170 PRINT 'INVALID ENTRY. TRY AGAIN.'
08180 GOTO 08120
08190 PRINT 'ENTER NEW NAME';
08200 INPUT Y1$
08210 PRINT 'IS ';Y1$;' CORRECT(Y/N)';
08220 INPUT Y2$
08230 IF Y2$ = 'Y' GOTO 08270
08240 IF Y2$ = 'N' GOTO 08190
08250 PRINT 'INVALID RESPONSE. ENTER Y OR N.'
08260 GOTO 08210
08270 D8$(X1) = Y1$
08280 GOTO 08120
08290 GOSUB 18000
08300 GOTO 07510
08310 PRINT
08320 K3 = 0
08330 GOSUB 13000
08340 PRINT 'ENTER NUMBER OF THE TYPE WHOSE AVAILABLE DAYS AND HOURS'
08350 PRINT 'YOU WISH TO REVIEW OR CHANGE. ENTER A ZERO WHEN FINISHED.'
08360 INPUT C5
08370 IF C5 = 0 GOTO 06970
08380 IF C5 >= 1 AND C5 <= G2 GOTO 08410
08390 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 0 TO';G2
08400 GOTO 08340
08410 IF D9(C5) <> 0 GOTO 08440
08420 PRINT 'THAT APPOINTMENT TYPE IS NOT AVAILABLE THIS SEMESTER.'
08430 GOTO 08340
08440 H8 = (C5 - 1) * K3
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08450 H7 = 0
08460 GOSUB 33000
08470 PRINT
08480 PRINT "DO YOU WISH TO MAKE ANY CHANGES(Y/N)";
08490 INPUT Y1$
08500 IF Y1$ = "Y" GOTO 08540
08510 IF Y1$ = "N" GOTO 08310
08520 PRINT "INVALID RESPONSE. TRY AGAIN."
08530 GOTO 08480
08540 GOSUB 36000
08550 GOTO 08310
08560 GOSUB 41000
08570 PRINT
08580 PRINT " WOULD YOU LIKE TO MAKE ANY CHANGES(Y/N)";
08590 INPUT Y1$
08600 IF Y1$ = "Y" GOTO 08640
08610 IF Y1$ = "N" GOTO 06040
08620 PRINT "INVALID ENTRY. TRY AGAIN."
08630 GOTO 08580
08640 GOSUB 42000
08650 GOTO 06040
08660 PRINT
08670 PRINT "FOR EACH APPOINTMENT TYPE YOU CHOOSE YOU WILL BE GIVEN"
08680 PRINT "A LISTING OF CURRENTLY RECORDED CANCELLATIONS AND THEN"
08690 PRINT "THE OPTION OF ADDING OR DELETING FROM THE LIST."
08700 PRINT
08710 K3 = 0
08720 GOSUB 13000
08730 PRINT
08740 PRINT "ENTER NUMBER OF YOUR CHOICE. ENTER A ZERO WHEN FINISHED.";
08750 INPUT C5
08760 IF C5 = 0 GOTO 06040
08770 IF C5 >= 1 AND C5 <= G2  GOTO 08800
08780 PRINT "INVALID ENTRY. ENTER A NUMER FROM 0 TO";G2
08790 GOTO 08740
08800 IF D9(C5) <> 0 GOTO 08830
08810 PRINT "THAT APPOINTMENT TYPE IS NOT AVAILABLE THIS SEMESTER."
08820 GOTO 08740
08830 H8 = 1 + (C5 - 1) * I6
08840 GOSUB 38000
08850 PRINT
08860 PRINT "WOULD YOU  LIKE TO MAKE ANY CHANGES(Y/N)";
08870 INPUT Y1$
08880 IF Y1$ = "Y" GOTO 08920
08890 IF Y1$ = "N" GOTO 08710
08900 PRINT "INVALID RESPONSE. TRY AGAIN."
08910 GOTO 08860
08920 GOSUB 39000
08930 GOTO 08710
08940 PRINT
08950 IF E6 = 0 GOTO 09090
08960 PRINT "FOLLOWING ARE THE CURRENT MESSAGES:"
08970 FOR X1 = 1 TO E6
08980 PRINT X1;") ";B6$(X1)
08990 NEXT X1
09000 PRINT
09010 PRINT "WOULD YOU LIKE TO MAKE ANY CHANGES(Y/N)";
09020 INPUT Y1$
09030 IF Y1$ = "Y" GOTO 09070
09040 IF Y1$ = "N" GOTO 06040
09050 PRINT "INVALID RESPONSE. TRY AGAIN."
09060 GOTO 09010
09070 GOSUB 35000
09080 GOTO 08940
09090 PRINT "THERE ARE NO CURRENT MESSAGES."
09100 GOTO 09010
10000 J2$ = "FAILURE"
10010 I7$ = SUBSTR(DAT$,5,5)
10020 C7$ = I7$
10030 I9 = 1
10040 GOSUB 14000
10050 IF E2$ = "NOTFOUND" GOTO 10080
10060 J5 = C8
10070 GOTO 10100
10080 IF G8 = 0 OR G8 = J1 GOTO 10110
10090 J5 = G9
10100 J2$ = "SUCCESS"
10110 RETURN
11000 IF I5 = 1 GOTO 11060
11010 GOSUB 29000
11020 IF E2$ = "FOUND" GOTO 11100
11030 IF G4 = 0 GOTO 11100
11040 GOSUB 31000
11050 GOTO 11100
11060 GOSUB 30000
11070 IF E2$ = "FOUND" GOTO 11100
11080 IF G4 = 0 GOTO 11100
11090 GOSUB 32000
11100 RETURN
12000 X1 = 0
12005 J4 = J4 - 1
12010 FOR X2 = 1 TO K5
12020 X1 = X1 + 1
12030 IF X1 > G3 GOTO 12270
12050 J4 = J4 + 1
12060 IF J4 > B8(J3) GOTO 12240
12070 IF J3 < 10 GOTO 12100
12080 Y8$ = STR$(J3)
12090 GOTO 12110
12100 Y8$ = "0" + STR$(J3)
12110 Y8$ = Y8$ + "/"
12120 IF J4 < 10 GOTO 12150
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12130 Y9$ = STR$(J4)
12140 GOTO 12160
12150 Y9$ = "0" + STR$(J4)
12160 B4$(X1) = Y8$ + Y9$
12180 NEXT X2
12190 J4 = J4 + (7 - (K5 - 1))
12200 IF J4 <= B8(J3) GOTO 12005
12210 J4 = J4 - B8(J3)
12220 J3 = J3 + 1
12230 GOTO 12005
12240 J3 = J3 + 1
12250 J4 = 1
12260 GOTO 12070
12270 J1 = G3
12280 RETURN
13000 PRINT
13010 PRINT "FOLLOWING ARE THE NAMES OF THE APPOINTMENT TYPES"
13020 PRINT
13030 FOR X9 = 1 TO G2
13040 PRINT X9;") ";D7$(X9)
13050 NEXT X9
13060 IF K3 = 0 GOTO 13110
13070 PRINT "THE LAST APPOINTMENT TYPE HAS FOLLOWING VARIETIES"
13080 FOR X9 = 1 TO G1
13090 PRINT X9;") ";D8$(X9)
13100 NEXT X9
13110 RETURN
14000 G8 = 0
14005 IF I9 = 1 GOTO 14016
14010 G9 = G3 + 1
14015 GOTO 14020
14016 G9 = J1 + 1
14020 E2$ = "NOTFOUND"
14030 IF G8 + 1 >= G9 GOTO 14170
14040 C8 = INT((G8 + G9) / 2)
14050 IF C7$ = B4$(C8) GOTO 14110
14060 IF C7$ < B4$(C8) GOTO 14090
14070 G8 = C8
14080 GOTO 14030
14090 G9 = C8
14100 GOTO 14030
14110 E2$ = "FOUND"
14120 H9 = C8 / K5
14130 IF H9 = INT(H9) GOTO 14160
14140 H9 = C8 - INT(H9) * K5
14150 GOTO 14170
14160 H9 = K5
14170 RETURN
15000 FOR X9 = 1 TO H2
15010 B9(X9) = 0
15020 NEXT X9
15030 RETURN
16000 H3 = 0
16010 FOR X9 = 1 TO F6
16020 IF C8 <> B1(X9,D6) GOTO 16060
16030 H3 = 1
16040 X2 = B2(X9,D6)
16050 B9(X2) = B9(X2) + 1
16060 NEXT X9
16070 RETURN
17000 D2 = 0
17005 I2 = 0
17010 IF H6 = 0 GOTO 17220
17020 FOR X1 = 1 TO F6
17030 IF B1(X1,D6) <> C8 GOTO 17200
17040 IF B2(X1,D6) <> C6 GOTO 17200
17050 IF D6 < G2 GOTO 17070
17060 I2 = B3(X1,(D6 - (G2 - 1)))
17070 D2 = D2 + 1
17080 IF C9 = 2 GOTO 17110
17090 IF D2 = D9(C5) GOTO 17210
17100 GOTO 17200
17110 IF H5 = 0 GOTO 17140
17120 B1(X1,D6) = 99
17130 IF H4 = 0 GOTO 17200
17140 IF X1 > F5 GOTO 17180
17150 X2 = A2(X1)
17160 PRINT A5$(X2)
17170 GOTO 17200
17180 X2 = X1 - F5
17190 PRINT A7$(X2)
17200 NEXT X1
17210 RETURN
17220 FOR X1 = 1 TO F6
17230 IF B1(X1,D6) <> C8 GOTO 17250
17240 B1(X1,D6) = 99
17250 NEXT X1
17260 GOTO 17210
18000 K3 = 0
18010 GOSUB 13000
18020 PRINT "ENTER THE NUMBER OF THE APPOINTMENT TYPE WHICH"
18030 PRINT "CORRESPONDS TO THE ONE WHOSE NUMBER OF PEOPLE YOU"
18040 PRINT "WISH TO ENTER. ENTER A ZERO WHEN FINISHED."
18050 INPUT C5
18060 IF C5 = 0  GOTO 19060
18070 IF C5 >= 1 AND C5 <= G2 GOTO 18100
18080 PRINT "INVALID ENTRY, ENTER A NUMBER FROM 0 TO";G2
18090 GOTO 18020
18100 PRINT "ENTER THE NUMBER OF PEOPLE WHO MAY MAKE AN"
18110 PRINT "APPOINTMENT AT THE SAME TIME."
18120 INPUT X1
18130 IF X1 >= 0 GOTO 18160
18140 PRINT "NUMBER CANNOT BE NEGATIVE. TRY AGAIN."
18150 GOTO 18100
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18160 IF C9 = 2 GOTO 18260
18170 PRINT 'THE NUMBER ALLOWED AT ONE TIME IS';X1
18180 PRINT 'IS THAT CORRECT(Y/N)';
18190 INPUT Y1$
18200 IF Y1$ = 'Y' GOTO 18240
18210 IF Y1$ = 'N' GOTO 18100
18220 PRINT 'INVALID RESPONSE. TRY AGAIN.'
18230 GOTO 18170
18240 D9(C5) = X1
18250 GOTO 18000
18260 PRINT 'THE NUMBER IS TO BE CHANGED FROM';D9(C5);'TO';X1
18270 PRINT 'IS THAT CORRECT(Y/N)';
18280 INPUT Y1$
18290 IF Y1$ = 'Y' GOTO 18330
18300 IF Y1$ = 'N' GOTO 18100
18310 PRINT 'INVALID RESPONSE. TRY AGAIN.'
18320 GOTO 18260
18330 IF X1 < D9(C5) GOTO 18360
18340 D9(C5) = X1
18350 GOTO 18000
18360 IF X1 <> 0 GOTO 18450
18370 PRINT 'ENTRY IS 0 WHICH MEANS THAT THIS APPOINTMENT TYPE'
18380 PRINT 'WILL BE UNAVAILABLE. IS THAT WHAT YOU INTENDED(Y/N)';
18390 INPUT Y1$
18400 IF Y1$ = 'Y' GOTO 18440
18410 IF Y1$ = 'N' GOTO 18100
18420 PRINT 'INVALID RESPONSE. TRY AGAIN.'
18430 GOTO 18370
18440 PRINT 'PLEASE REMEMBER TO NAME THIS TYPE 'UNAVAILABLE''
18450 D9(C5) = X1
18460 PRINT 'SINCE THE NEWLY ENTERED AMOUNT IS LESS THAN THE'
18470 PRINT 'PREVIOUSLY USED AMOUNT, WHAT DO YOU WISH TO DO ABOUT'
18480 PRINT 'THOSE CASES (IF ANY) IN WHICH THE NUMBER OF APPOINT-'
18490 PRINT 'MENTS ALREADY RECORDED EXCEED THE NEW AMOUNT:'
18500 PRINT '1) ALLOW ALREADY RECORDED APPOINTMENTS TO REMAIN'
18510 PRINT '2) SAME AS 1, BUT ALSO SEE A LISTING OF SUCH'
18520 PRINT '     APPOINTMENTS FOR ALL DATES AND HOURS'
18530 PRINT '3) CANCEL ALL APPOINTMENTS WHICH EXCEED NEW AMOUNT'
18540 PRINT '4) SAME AS 3, BUT ALSO SEE A LISTING OF ALL'
18550 PRINT '     CANCELLED APPOINTMENTS'
18560 PRINT 'ENTER THE NUMBER OF YOUR CHOICE';
18570 INPUT X3
18580 IF X3 >= 1 AND X3 <= 4 GOTO 18610
18590 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 1 TO 4.'
18600 GOTO 18560
18610 IF X3 = 1 GOTO 18000
18620 H6 = 1
18630 X6 = 0
18640 IF X3 = 2 GOTO 18710
18650 IF X3 = 3 GOTO 18680
18660 H4 = 1
18670 GOTO 18690
18680 H4 = 0
18690 H5 = 1
18700 GOTO 18720
18710 H5 = 0
18720 IF C5 = G2 GOTO 18750
18730 X3 = C5
18740 GOTO 18760
18750 X3 = A4
18760 H3 = 1
18770 FOR D6 = C5 TO X3
18780 FOR X4 = 1 TO F6
18790 IF B1(X4,D6) = 0 OR B1(X4,D6) = 99 GOTO 18960
18800 FOR X5 = 1 TO X4 - 1
18810 IF B1(X5,D6) = B1(X4,D6) GOTO 18960
18820 NEXT X5
18830 C8 = B1(X4,D6)
18840 IF H3 = 0 GOTO 18860
18850 GOSUB 15000
18860 GOSUB  16000
18870 IF H3 = 0 GOTO 18960
18880 FOR X5 = 1 TO H2
18890 IF B9(X5) <= D9(C5) GOTO 18950
18900 X6 = 1
18910 C6 = X5
18920 IF H4 = 0 AND H5 = 1 GOTO 18940
18930 PRINT 'ON ';B4$(C8);' AT ';A9$(C6)
18940 GOSUB 17000
18950 NEXT X5
18960 NEXT X4
18970 NEXT D6
18980 IF H4 = 1 OR H5 = 0 GOTO 19010
18990 PRINT 'CANCELLATION PROCESS COMPLETED.'
19000 GOTO 18000
19010 IF X6 = 0 GOTO 19040
19020 PRINT 'LISTING COMPLETED.'
19030 GOTO 18000
19040 PRINT 'NO RECORDED APPOINTMENTS EXCEEDED NEW AMOUNT.'
19050 GOTO 18000
19060 RETURN
20000 IF C9 = 3 GOTO 20700
20005 X9 = 0
20010 PRINT
20020 PRINT TAB(23);'ORIGINALLY ENTERED ID # AND NAMES'
20030 PRINT
20040 FOR X1 = 1 TO F5
20045 X2 = A6(X1)
20050 PRINT A1(X2);'   ';A5$(X1)
20060 NEXT X1
20070 PRINT
20080 IF G4 = 0 GOTO 20150
20090 PRINT TAB(27);'ADDITIONAL ID # AND NAMES'
20100 PRINT
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20110 FOR X1 = 1 TO G4
20120 PRINT X1;") ";A3(X1);"   ";A7$(X1)
20130 NEXT X1
20135 IF X9 = 1 GOTO 20270
20140 GOTO 20160
20150 PRINT "THERE ARE AS YET NO ADDITIONAL ID # AND NAMES."
20155 GOTO 20700
20160 PRINT
20170 PRINT "NOTE THAT ONLY ENTRIES IN THE LIST OF ADDITIONAL ID #"
20180 PRINT "AND NAMES MAY BE REPLACED. TO CHANGE AN ENTRY IN THE"
20190 PRINT "LIST OF ORIGINAL ID # AND NAMES SIMPLY ADD THE NEW ENTRY"
20200 PRINT "TO THE ADDITIONAL LIST. THERE IS NO NEED TO SIMPLY DELETE"
20210 PRINT "FROM EITHER LIST."
20220 X2 = 0
20230 PRINT
20240 PRINT "YOUR FIRST OPTION IS TO REPLACE AN ENTRY IN THE LIST"
20250 PRINT "OF ADDITIONAL ID # AND NAMES. YOUR NEXT OPTION WILL BE"
20260 PRINT "TO ADD A NEW ENTRY TO THAT SAME LIST."
20265 X9 = 1
20270 PRINT
20280 PRINT "DO YOU WISH TO REPLACE AN ENTERED ADDITIONAL ID # OR"
20290 PRINT "NAME WITH ANOTHER ENTRY(Y/N)";
20300 INPUT Y1$
20310 IF Y1$ = "Y" GOTO 20350
20320 IF Y1$ = "N" GOTO 20700
20330 PRINT "INVALID ENTRY. TRY AGAIN."
20340 GOTO 20280
20350 PRINT "ENTER NUMBER CORRESPONDING TO ENTRY TO BE REPLACED"
20360 INPUT X1
20370 IF X1 >= 1 AND X1 <= G4 GOTO 20400
20380 PRINT "INVALID ENTRY. ENTER A NUMBER FROM 1 TO";G4
20390 GOTO 20350
20400 PRINT "DO YOU WISH TO REPLACE THE ID # (Y/N)";
20410 INPUT Y1$
20420 IF Y1$ = "Y" GOTO 20460
20430 IF Y1$ = "N" GOTO 20480
20440 PRINT "INVALID ENTRY. TRY AGAIN."
20450 GOTO 20400
20460 X2 = 1
20470 GOSUB 21000
20480 PRINT "DO YOU WISH TO REPLACE THE NAME (Y/N)";
20490 INPUT Y1$
20500 IF Y1$ = "Y" GOTO 20540
20510 IF Y1$ = "N" GOTO 20090
20520 PRINT "INVALID ENTRY. TRY AGAIN."
20530 GOTO 20480
20540 GOSUB 22000
20550 IF X2 = 0 GOTO 20090
20560 PRINT "IS THE REPLACEMENT ID #/ NAME!"
20570 PRINT "1) A CORRECTION FOR AN ONGOING STUDENT"
20580 PRINT "2) A FIRST TIME ENTRY FOR A NEW STUDENT"
20590 PRINT "ENTER APPROPRIATE NUMBER";
```



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20600 INPUT X3
20610 IF X3 >= 1 AND X3 <= 2 GOTO 20640
20620 PRINT "INVALID ENTRY. ENTER A 1 OR A 2."
20630 GOTO 20590
20640 IF X3 = 1 GOTO 20090
20650 X3 = F5 + X1
20660 FOR X4 = 1 TO A4
20670 B1(X3,X4) = 0
20680 NEXT X4
20690 GOTO 20090
20700 PRINT
20710 PRINT "DO YOU WISH TO ADD A NEW ID # AND NAME(Y/N)";
20720 INPUT Y1$
20730 IF Y1$ = "Y" GOTO 20770
20740 IF Y1$ = "N" GOTO 20920
20750 PRINT "INVALID RESPONSE. TRY AGAIN."
20760 GOTO 20710
20770 IF G4 = F8 GOTO 20820
20775 F6 = F6 + 1
20780 G4 = G4 + 1
20785 X1 = G4
20790 GOSUB 21000
20800 GOSUB 22000
20810 GOTO 20700
20820 PRINT
20830 PRINT "MAXIMUM NUMBER OF ADDITIONAL ID # AND NAMES HAVE BEEN"
20840 PRINT "ENTERED. THE ONLY WAY TO ADD A NEW ID # OR NAME IS TO"
20850 PRINT "REPLACE ONE OF THE ALREADY EXISTING ENTRIES."
20860 PRINT "DO YOU WISH TO REPLACE A CURRENT ENTRY(Y/N)";
20870 INPUT Y1$
20880 IF Y1$ = "Y" GOTO 20090
20890 IF Y1$ = "N" GOTO 20920
20900 PRINT "INVALID RESPONSE. TRY AGAIN."
20910 GOTO 20860
20920 RETURN
21000 PRINT
21010 PRINT "ENTER ID NUMBER";
21020 INPUT A3(X1)
21030 PRINT "IS";A3(X1);"CORRECT (Y/N)";
21040 INPUT Y1$
21050 IF Y1$ = "Y" GOTO 21090
21060 IF Y1$ = "N" GOTO 21010
21070 PRINT "INVALID RESPONSE. TRY AGAIN."
21080 GOTO 21030
21090 RETURN
22000 PRINT
22010 PRINT "ENTER NAME USING FORMAT: LAST NAME-SPACE-FIRST NAME/INITIAL"
22020 PRINT "(SPACE-MIDDLE NAME/INITIAL, IF DESIRED OR NECESSARY TO MAKE"
22030 PRINT "NAME UNIQUE). DO NOT INCLUDE ANY PUNCTUATION IN THE NAME."
22040 PRINT "(SAMPLE ENTRY: MCCARTHY MARY A )"
22050 PRINT "ENTER NAME";
22060 INPUT A7$(X1)
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22070 PRINT "IS "#A7$(X1)#" CORRECT (Y/N)"#
22080 INPUT Y1$
22090 IF Y1$ = "Y" GOTO 22130
22100 IF Y1$ = "N" GOTO 22050
22110 PRINT "INVALID ENTRY. TRY AGAIN."
22120 GOTO 22070
22130 RETURN
23000 FOR X1 = 2 TO F5
23010 GOSUB 24000
23020 NEXT X1
23030 FOR X1 = F5 TO 2 STEP -1
23040 X2 = A1(1)
23050 X3 = A2(1)
23060 A1(1) = A1(X1)
23070 A2(1) = A2(X1)
23080 A1(X1) = X2
23090 A2(X1) = X3
23100 GOSUB 25000
23110 NEXT X1
23120 RETURN
24000 X2 = A1(X1)
24010 X3 = A2(X1)
24020 X4 = X1
24030 IF X4 = 1 GOTO 24100
24040 X5 = INT( X4 / 2)
24050 IF X2 <= A1(X5) GOTO 24100
24060 A1(X4) = A1(X5)
24070 A2(X4) = A2(X5)
24080 X4 = X5
24090 GOTO 24030
24100 A1(X4) = X2
24110 A2(X4) = X3
24120 RETURN
25000 X2 = A1(1)
25010 X3 = A2(1)
25020 X4 = X1 - 1
25030 X5 = 1
25040 X6 = X5 * 2
25050 IF X6 > X4 GOTO 25150
25060 IF X6 < X4 GOTO 25120
25070 IF A1(X6) <= X2 GOTO 25150
25080 A1(X5) = A1(X6)
25090 A2(X5) = A2(X6)
25100 X5 = X6
25110 GOTO 25040
25120 IF A1(X6 + 1) <= A1(X6) GOTO 25070
25130 X6 = X6 + 1
25140 GOTO 25070
25150 A1(X5) = X2
25160 A2(X5) = X3
25170 RETURN
26000 FOR X1 = 1 TO F8
26010 A3(X1) = 0
26020 A7$(X1) = "ZZZ"
26030 NEXT X1
26040 FOR X1 = 1 TO E5
26050 B6$(X1) = "X"
26060 NEXT X1
26070 E6 = 0
26080 FOR X1 = 1 TO J9
26090 FOR X2 = 1 TO I4
26100 D(X1,X2) = 0
26110 NEXT X2
26120 NEXT X1
26130 FOR X1 = 1 TO G2
26140 D9(X1) = 0
26150 NEXT X1
26160 RETURN
27000 FOR X1 = F5 TO F7
27010 A1(X1) = 0
27020 A2(X1) = 0
27030 A5$(X1) = "ZZZ"
27040 A6(X1) = 0
27050 NEXT X1
27055 F5 = F5 - 1
27060 RETURN
28000 FOR X1 = 1 TO D1
28010 FOR X2 = 1 TO A4
28020 B1(X1,X2) = 0
28030 B2(X1,X2) = 0
28040 NEXT X2
28050 FOR X2 = 1 TO K1
28060 B3(X1,X2) = 0
28070 NEXT X2
28080 NEXT X1
28090 FOR X1 = 1 TO F9
28100 B5(X1) = 0
28110 NEXT X1
28120 I8 = 1
28130 FOR X1 = 1 TO J8
28140 FOR X2 = 1 TO 2
28150 C(X1,X2) = 0
28160 NEXT X2
28170 NEXT X1
28180 RETURN
29000 G8 = 0
29010 G9 = F5 + 1
29020 E2$ = "NOTFOUND"
29030 IF G8 + 1 >= G9 GOTO 29140
29040 C2 = INT((G8 + G9) / 2)
29050 IF C1 = A1(C2) GOTO 29110
29060 IF C1 < A1(C2) GOTO 29090
29070 G8 = C2
29080 GOTO 29030
```

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29090 G9 = C2
29100 GOTO 29030
29110 E2$ = "FOUND"
29120 X1 = A2(C2)
29130 C1$ = A5$(X1)
29140 RETURN
30000 G8 = 0
30010 G9 = F5 + 1
30020 E2$ = "NOTFOUND"
30030 IF (G8 + 1) >= G9 GOTO 30140
30040 C2 = INT((G8 + G9) / 2)
30050 IF C1$ = A5$(C2) GOTO 30110
30060 IF C1$ < A5$(C2) GOTO 30090
30070 G8 = C2
30080 GOTO 30030
30090 G9 = C2
30100 GOTO 30030
30110 E2$ = "FOUND"
30120 C2 = A6(C2)
30130 C1 = A1(C2)
30140 RETURN
31000 E2$ = "NOTFOUND"
31010 FOR C2 = 1 TO G4
31020 IF C1 = A3(C2) GOTO 31050
31030 NEXT C2
31040 GOTO 31080
31050 E2$ = "FOUND"
31060 C1$ = A7$(C2)
31070 C2 = C2 + F5
31080 RETURN
32000 E2$ = "NOTFOUND"
32010 FOR C2 = 1 TO G4
32020 IF C1$ = A7$(C2) GOTO 32050
32030 NEXT C2
32040 GOTO 32080
32050 E2$ = "FOUND"
32060 C1 = A3(C2)
32070 C2 = C2 + F5
32080 RETURN
33000 PRINT
33010 IF H7 = 0 GOTO 33050
33020 IF D(H8 + H7,1) = 1 GOTO 33050
33030 PRINT "ENTERED DAY IS NOT OPEN FOR ANY APPOINTMENTS."
33040 GOTO 33570
33050 PRINT "AN 'X' WILL BE DISPLAYED UNDER EVERY TIME THAT IS"
33060 PRINT "AVAILABLE FOR APPOINTMENTS."
33070 PRINT
33080 X8 = -1
33090 FOR X9 = 1 TO H2
33100 IF X9 >= 6 AND X9 <= 9 GOTO 33160
33110 IF X9 = (2 * INT(X9 / 2)) GOTO 33140
33120 X8 = X8 + 4
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33130 GOTO 33200
33140 X8 = X8 + 2
33150 GOTO 33200
33160 IF X9 = (2 * INT(X9 / 2)) GOTO 33190
33170 X8 = X8 + 5
33180 GOTO 33200
33190 X8 = X8 + 3
33200 PRINT TAB(X8);A9$(X9);
33210 NEXT X9
33220 PRINT
33230 IF H7 > 0 GOTO 33280
33240 X6 = 1
33250 X8 = H8 + 1
33260 X7 = H8 + K5
33270 GOTO 33310
33280 X6 = H7
33290 X8 = H8 + H7
33300 X7 = H8 + H7
33310 FOR X9 = X8 TO X7
33320 ON X6 GOTO 33330,33350,33370,33390,33410
33330 PRINT "M";
33340 GOTO 33420
33350 PRINT "TU";
33360 GOTO 33420
33370 PRINT "W";
33380 GOTO 33420
33390 PRINT "TH";
33400 GOTO 33420
33410 PRINT "F";
33420 IF D(X9,1) = 1 GOTO 33450
33430 PRINT TAB(25);"NOT OPEN FOR ANY APPOINTMENTS";
33440 GOTO 33540
33450 X4 = 0
33460 FOR X5 = 2 TO H2 + 1
33470 IF X5 >= 7 AND X5 <= 10 GOTO 33500
33480 X4 = X4 + 3
33490 GOTO 33510
33500 X4 = X4 + 4
33510 IF D(X9,X5) = 0 GOTO 33530
33520 PRINT TAB(X4);"X";
33530 NEXT X5
33540 PRINT
33550 X6 = X6 + 1
33560 NEXT X9
33570 RETURN
34000 PRINT
34010 PRINT "FOLLOWING ARE THE HOURS ON WHICH APPOINTMENTS MAY BE MADE"
34020 IF K4 = 1 GOTO 34040
34030 PRINT "ALONG WITH 3 CODES FOR YOUR CONVENIENCE"
34040 PRINT
34050 PRINT "1) 8:00 (2) 8:30 (3) 9:00 (4) 9:30 (5) 10:00 (6) 10:30"
34060 PRINT "7) 11:00 (8) 11:30 (9) 1:00 (10) 1:30 (11) 2:00 (12) 2:30"
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34070 PRINT '13) 3:00 (14) 3:30 (15) 4:00 (16) 4:30 (17) 5:00 (18) 5:30'
34080 PRINT '19) 6:00 (20) 6:30 (21) 7:00 (22) 7:30 (23) 8:00'
34090 IF K4 = 1 GOTO 34120
34100 PRINT '24) 8 TO 4 ON THE HOUR (25) 8 TO 8 ON THE HOUR'
34110 PRINT '26) 2 HOUR APPOINTMENTS BEGINNING 8, 10, 1, 3'
34120 RETURN
35000 PRINT
35010 IF E6 = 0 GOTO 35280
35020 PRINT 'DO YOU WISH TO DELETE A MESSAGE LINE(Y/N)';
35030 INPUT Y1$
35040 IF Y1$ = 'Y' GOTO 35080
35050 IF Y1$ = 'N' GOTO 35190
35060 PRINT 'INVALID RESPONSE. TRY AGAIN.'
35070 GOTO 35020
35080 PRINT 'ENTER LINE NUMBER YOU WISH TO DELETE. ENTER A ZERO '
35090 PRINT 'WHEN FINISHED.'
35100 INPUT X1
35110 IF X1 = 0 GOTO 35190
35120 IF X1 >= 1 AND X1 <= E6 GOTO 35145
35130 PRINT 'INVALID ENTRY. ENTER NUMBER FROM 0 TO';E6
35140 GOTO 35080
35145 E6 = E6 - 1
35150 FOR X2 = X1 TO E6
35160 B6$(X2) = B6$(X2 + 1)
35170 NEXT X2
35180 GOTO 35080
35190 IF E6 <> E5 GOTO 35280
35200 PRINT 'MAXIMUM NUMBER OF MESSAGE LINES HAVE BEEN ENTERED.'
35210 PRINT 'TO MAKE ANY CHANGES REQUIRES DELETING CURRENT LINES.'
35220 PRINT 'DO YOU WISH TO MAKE ANY DELETIONS(Y/N)';
35230 INPUT Y1$
35240 IF Y1$ = 'Y' GOTO 35080
35250 IF Y1$ = 'N' GOTO 35420
35260 PRINT 'INVALID RESPONSE. TRY AGAIN'
35270 GOTO 35220
35280 PRINT 'DO YOU WISH TO ADD A NEW MESSAGE LINE (Y/N)';
35290 INPUT Y1$
35300 IF Y1$ = 'Y' GOTO 35340
35310 IF Y1$ = 'N' GOTO 35420
35320 PRINT 'INVALID RESPONSE. TRY AGAIN.'
35330 GOTO 35280
35340 PRINT 'WHEN FINISHED ENTER LETTER 'X'.'
35350 PRINT 'MESSAGE IS';
35360 INPUT Y1$
35370 IF Y1$ = 'X' GOTO 35420
35380 E6 = E6 + 1
35390 B6$(E6) = Y1$
35400 IF E6 = E5 GOTO 35200
35410 GOTO 35350
35420 RETURN
36000 IF C9 = 3 GOTO 36625
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36010 PRINT 'ENTER THE NUMBER OF THE DAY YOU ARE INTERESTED IN (MONDAY=1,'
36020 PRINT 'TUESDAY=2,...) AND THE AVAILABLE TIMES FOR THAT DAY WILL BE'
36030 PRINT 'DISPLAYED AND YOU WILL BE GIVEN THE OPTION OF MAKING CHANGES.'
36040 PRINT 'ENTER A ZERO WHEN FINISHED.';
36050 INPUT H7
36060 IF H7 = 0 GOTO 37620
36070 IF  H7 >= 1 AND H7 <= K5 GOTO 36110
36080 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 0 TO';K5
36090 GOTO 36010
36110 PRINT
36120 GOSUB 33000
36130 PRINT
36140 PRINT 'DO YOU WISH TO MAKE ANY CHANGES(Y/N)';
36150 INPUT Y1$
36160 IF Y1$ = 'Y' GOTO 36200
36170 IF Y1$ = 'N' GOTO 36010
36180 PRINT 'INVALID RESPONSE. TRY AGAIN.'
36190 GOTO 36140
36200 IF D(H8 + H7,1) = 1 GOTO 36300
36210 PRINT 'THE DAY IS CURRENTLY UNAVAILABLE FOR ANY APPOINTMENTS.'
36220 PRINT 'DO YOU WISH TO MAKE IT AVAILABLE AT CERTAIN HOURS(Y/N)';
36230 INPUT Y1$
36240 IF Y1$ = 'Y' GOTO 36280
36250 IF Y1$ = 'N' GOTO 36010
36260 PRINT 'INVALID RESPONSE. TRY AGAIN.'
36270 GOTO 36210
36280 H5 = 0
36290 GOTO 36630
36300 H5 = 1
36310 PRINT 'THE DAY IS CURRENTLY AVAILABLE FOR APPOINTMENTS AT'
36320 PRINT 'CERTAIN HOURS. DO YOU WISH TO'
36330 PRINT '1) MAKE DAY COMPLETELY UNAVAILABLE'
36340 PRINT '2) CHANGE HOURS WHEN APPOINTMENTS MAY BE MADE'
36350 PRINT '3) SIMPLY RETAIN CURRENT STATUS OF DAY UNCHANGED'
36360 PRINT 'ENTER THE NUMBER OF YOUR CHOICE';
36370 INPUT X3
36380 IF X3 = 3 GOTO 36010
36390 IF X3 = 2 GOTO 36580
36400 IF X3 = 1 GOTO 36430
36410 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 1 TO 3.'
36420 GOTO 36360
36430 I1 = 0
36435 X8 = 1
36440 D(H8 + H7,1) = 0
36450 PRINT 'APPOINTMENTS ALREADY RECORDED ON THAT DAY THROUGHOUT THE'
36460 PRINT 'SEMESTER MUST NOW BE CANCELLED. DO YOU WISH TO SEE A LISTING'
36470 PRINT 'OF THOSE CANCELLED APPOINTMENTS(Y/N)';
36480 INPUT Y1$
36490 IF Y1$ = 'Y' GOTO 36550
36500 IF Y1$ = 'N' GOTO 36530
36510 PRINT 'INVALID RESPONSE. TRY AGAIN.'
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36520 GOTO 36450
36530 H6 = 0
36540 GOTO 37220
36550 H6 = 1
36560 H4 = 1
36570 GOTO 37220
36580 IF H5 = 0 GOTO 36630
36590 FOR X3 = 1 TO H2
36600 E3(X3) = D(H8 + H7,X3 + 1)
36610 D(H8 + H7,X3 + 1) = 0
36620 NEXT X3
36625 K4 = 0
36630 GOSUB 34000
36635 D(H8 + H7,1) = 1
36640 PRINT "ENTER NUMBER CORRESPONDING TO TIME (OR CODE) AT WHICH"
36650 PRINT "APPOINTMENTS ARE ALLOWED TO BEGIN. ENTER A ZERO WHEN FINISHED."
36660 INPUT X3
36670 IF X3 = 0 GOTO 36860
36680 IF X3 >= 24 AND X3 <= 26 GOTO 36740
36690 IF X3 >= 1 AND X3 <= H2 GOTO 36720
36700 PRINT "INVALID ENTRY. ENTER A NUMBER FROM 0 TO 26."
36710 GOTO 36640
36720 D(H8 + H7,X3 + 1) = 1
36730 GOTO 36640
36740 IF X3 = 26 GOTO 36800
36750 FOR X4 = 1 TO H2 STEP 2
36760 IF X3 = 24 AND X4 > 15 GOTO 36790
36770 D(H8 + H7,X4 + 1) = 1
36780 NEXT X4
36790 GOTO 36640
36800 X4 = -2
36810 FOR X5 = 1 TO 4
36820 X4 = X4 + 4
36830 D(H8 + H7,X4) = 1
36840 NEXT X5
36850 GOTO 36640
36860 PRINT
36870 PRINT "THIS IS THE AVAILABILITY DATA NOW RECORDED"
36880 PRINT
36890 GOSUB 33000
36900 PRINT "IS THIS INFORMATION CORRECT(Y/N)"
36910 INPUT Y1$
36920 IF Y1$ = "Y" GOTO 37010
36930 IF Y1$ = "N" GOTO 36960
36940 PRINT "INVALID RESPONSE. TRY AGAIN."
36950 GOTO 36900
36960 PRINT "ALL AVAILABILITY DATA MUST BE RE-ENTERED."
36970 FOR X3 = 1 TO H2
36980 D(H8 + H7,X3 + 1) = 0
36990 NEXT X3
37000 GOTO 36630
```



```
37010 IF C9 = 3 GOTO 37620
37020 IF H5 = 0 GOTO 36010
37030 FOR X8 = 1 TO H2
37040 IF E3(X8) = 1 AND D(H8 + H7,X8 + 1) = 0 GOTO 37070
37050 NEXT X8
37060 GOTO 36010
37070 I1 = 1
37080 PRINT "SINCE A TIME (OR TIMES) PREVIOUSLY AVAILABLE FOR"
37090 PRINT "APPOINTMENTS IS NOW UNAVAILABLE IT IS NECESSARY TO CANCEL"
37100 PRINT "ALL APPOINTMENTS ALREADY RECORDED FOR SUCH TIMES."
37110 PRINT "DO YOU WISH TO SEE A LISTING OF ALL SUCH CANCELLED"
37120 PRINT "APPOINTMENTS (Y/N)"
37130 INPUT Y1$
37140 IF Y1$ = "Y" GOTO 37200
37150 IF Y1$ = "N" GOTO 37180
37160 PRINT "INVALID RESPONSE. TRY AGAIN."
37170 GOTO 37110
37180 H4 = 0
37190 GOTO 37210
37200 H4 = 1
37210 H6 = 1
37220 C7$ = I7$
37230 GOSUB 14000
37240 IF E2$ = "FOUND" GOTO 37280
37250 X3 = G9
37260 H9 = 1
37270 GOTO 37290
37280 X3 = C8
37290 IF H9 <= H7 GOTO 37320
37300 X3 = X3 + (K5 - (H9 - H7))
37310 GOTO 37340
37320 IF H9 = H7 GOTO 37340
37330 X3 = X3 + (H7 - H9)
37340 IF C5 = G2 GOTO 37370
37350 X4 = C5
37360 GOTO 37380
37370 X4 = A4
37380 X6 = 0
37390 H3 = 1
37400 FOR D6 = C5 TO X4
37410 FOR C8 = X3 TO G3 STEP K5
37420 IF H3 = 0 GOTO 37440
37430 GOSUB 15000
37440 GOSUB 16000
37450 IF H3 = 0 GOTO 37560
37460 FOR C6 = X8 TO H2
37470 IF B9(C6) = 0 GOTO 37550
37480 IF I1 = 0 GOTO 37500
37490 IF D(H8 + H7,C6 + 1) = 1 GOTO 37550
37500 IF H4 = 0 GOTO 37540
37510 PRINT "FOR "D7$(C5)
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```
37520 PRINT "ON "|B4$(C8)|" AT "|A9$(C6)
37530 X6 = 1
37540 GOSUB 17000
37550 NEXT C6
37560 NEXT C8
37570 NEXT D6
37580 IF H4 = 0 GOTO 36010
37590 IF H4 = 1 AND X6 = 1 GOTO 36010
37600 PRINT "NO APPOINTMENTS HAD TO BE CANCELLED."
37610 GOTO 36010
37620 RETURN
38000 PRINT
38010 I3 = H8
38020 IF C(H8,1) = 0 GOTO 38220
38030 PRINT "FOR "|D7$(C5)|" THE FOLLOWING"
38040 PRINT "CANCELLATIONS HAVE BEEN ENTERED"
38050 X8 = 0
38060 FOR I3 = H8 TO (H8 + I6 - 1)
38070 X8 = X8 + 1
38080 IF C(I3,1) = 0 GOTO 38210
38090 X9 = C(I3,1)
38100 IF C(I3,2) = 1 GOTO 38190
38110 IF C(I3,2) = 2 GOTO 38170
38120 IF C(I3,2) = 3 GOTO 38150
38130 PRINT X8|") "|B4$(X9)|" FOR THE EVENING HOURS (5 TO 9)"
38140 GOTO 38200
38150 PRINT X8|") "|B4$(X9)|" FOR THE AFTERNOON HOURS (1 TO 5)"
38160 GOTO 38200
38170 PRINT X8|") "|B4$(X9)|" FOR THE MORNING HOURS (8 TO 12)"
38180 GOTO 38200
38190 PRINT X8|") "|B4$(X9)|" FOR ALL HOURS (8 AM TO 9 PM)"
38200 NEXT I3
38205 I3 = I3 + 1
38210 RETURN
38220 PRINT "THERE ARE NO CANCELLATIONS FOR"
38230 PRINT D7$(C5)
38240 GOTO 38210
39000 PRINT
39010 IF C9 = 3 GOTO 39440
39020 IF H8 = I3 GOTO 39440
39030 PRINT "NOTE THAT TO CORRECT OR CHANGE AN ALREADY RECORDED"
39040 PRINT "CANCELLATION DATE AND TIME IT IS NECESSARY TO DELETE THE"
39050 PRINT "CURRENT ENTRY AND THEN ADD THE NEW (CORRECTED) VERSION."
39060 PRINT "DO YOU WISH TO MAKE A DELETION (Y/N)"|
39070 INPUT Y1$
39080 IF Y1$ = "Y" GOTO 39120
39090 IF Y1$ = "N" GOTO 39340
39100 PRINT "INVALID ENTRY. TRY AGAIN."
39110 GOTO 39060
39120 PRINT "ENTER THE NUMBER CORRESPONDING TO THE DATE TO BE DELETED"
39130 INPUT X3
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39140 X7 = I3 - H8
39150 IF X3 >= 1 AND X3 <= X7 GOTO 39180
39160 PRINT "INVALID ENTRY. TRY AGAIN."
39170 GOTO 39120
39180 IF X7 = I6 GOTO 39210
39190 X6 = I3
39200 GOTO 39220
39210 X6 = I3 - 1
39220 X4 = H8 + X3 - 1
39230 FOR X5 = X4 TO X6 - 1
39240 C(X5,1) = C(X5 + 1,1)
39250 C(X5,2) = C(X5 + 1,2)
39260 NEXT X5
39270 I3 = I3 - 1
39280 IF X7 < I6 GOTO 39300
39290 C(I3,1) = 0
39300 IF H8 = I3 GOTO 39440
39310 PRINT "AFTER THE DELETION"
39320 GOSUB 38000
39330 GOTO 39060
39340 IF (I3 - H8) < I6 GOTO 39440
39350 PRINT "MAXIMUM NUMBER OF CANCELLATIONS HAVE BEEN ENTERED FOR CURRENT"
39360 PRINT "APPOINTMENT TYPE. IN ORDER TO MAKE ANY ADDITIONS IT WILL BE"
39370 PRINT "NECESSARY TO DELETE SOME OF THE CURRENT ENTRIES."
39380 PRINT "DO YOU WISH TO MAKE ANY DELETIONS (Y/N)"|
39390 INPUT Y1$
39400 IF Y1$ = "Y" GOTO 39435
39410 IF Y1$ = "N" GOTO 40481
39420 PRINT "INVALID RESPONSE. TRY AGAIN."
39430 GOTO 39380
39435 GOSUB 38000
39436 GOTO 39120
39440 PRINT "DO YOU WISH TO ADD A NEW CANCELLATION DATE(Y/N)"|
39450 INPUT Y1$
39460 IF Y1$ = "Y" GOTO 39500
39470 IF Y1$ = "N" GOTO 40481
39480 PRINT "INVALID RESPONSE. TRY AGAIN."
39490 GOTO 39440
39500 PRINT "ENTER DATE TO BE CANCELLED AS MM/DD. BE SURE TO USE TWO"
39510 PRINT "DIGITS FOR BOTH MONTH AND DAY (EG. JANUARY 9TH IS 01/09)"
39520 INPUT C7$
39530 IF LEN(C7$) = 5  GOTO 39560
39540 PRINT "INVALID ENTRY. ENTER 5 CHARACTERS IN FORM: MM/DD."
39550 GOTO 39500
39560 IF C7$ >= I7$ GOTO 39660
39570 PRINT "ENTERED DATE IS EITHER ERRONEOUS OR HAS PASSED. CANCELLATIONS"
39580 PRINT "MAY BE ENTERED ONLY FOR DATES GREATER THAN OR EQUAL TO TODAY'S"
39590 PRINT "DATE (WHICH IS "|I7$|")."
39600 PRINT "DO YOU WANT TO ENTER ANOTHER DATE (Y/N)"|
39610 INPUT Y1$
39620 IF Y1$ = "Y" GOTO 39500
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39630 IF Y1$ = 'N' GOTO 40481
39640 PRINT 'INVALID ENTRY. TRY AGAIN.'
39650 GOTO 39600
39660 I9 = 1
39665 GOSUB 14000
39670 IF E2$ = 'FOUND' GOTO 39760
39680 PRINT 'ENTERED DATE IS EITHER ERRONEOUS OR IS NOT THE DATE OF AN'
39690 PRINT 'APPOINTMENT DAY DURING THIS SEMESTER.'
39700 PRINT 'DO YOU WISH TO ENTER ANOTHER DATE (Y/N)';
39710 INPUT Y1$
39720 IF Y1$ = 'Y' GOTO 39500
39730 IF Y1$ = 'N' GOTO 40481
39740 PRINT 'INVALID RESPONSE. TRY AGAIN.'
39750 GOTO 39700
39760 C(I3,1) = C8
39770 PRINT 'FOLLOWING ARE THE NUMBERS WHICH INDICATE WHICH HOURS ARE'
39780 PRINT 'TO BE CANCELLED:'
39790 PRINT '1) ALL HOURS (8 AM TO 9 PM)'
39800 PRINT '2) ALL MORNING (8 TO 12)'
39810 PRINT '3) ALL AFTERNOON (1 TO 5)'
39820 PRINT '4) ALL EVENING (5 TO 9)'
39830 PRINT 'ENTER THE APPROPRIATE NUMBER';
39840 INPUT X3
39850 IF X3 >= 1 AND X3 <= 4 GOTO 39880
39860 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 1 TO 4.'
39870 GOTO 39830
39880 C(I3,2) = X3
39890 I3 = I3 + 1
39970 IF C9 = 3 GOTO 39340
39980 IF X3 = 1 GOTO 40100
39990 IF X3 = 2 GOTO 40070
40000 IF X3 = 3 GOTO 40040
40010 X4 = 17
40020 X5 = H2
40030 GOTO 40120
40040 X4 = 9
40050 X5 = 16
40060 GOTO 40120
40070 X4 = 1
40080 X5 = 8
40090 GOTO 40120
40100 X4 = 1
40110 X5 = H2
40120 H5 = 1
40130 H6 = 1
40140 PRINT 'IT IS NOW NECESSARY TO CANCEL ANY APPOINTMENTS ALREADY'
40150 PRINT 'RECORDED ON ENTERED DATE AND TIME. '
40160 PRINT 'DO YOU WISH TO SEE A LISTING OF SUCH CANCELLED APPOINTMENTS'
40170 PRINT 'ENTER A Y OR AN N';
40180 INPUT Y1$
40190 IF Y1$ = 'Y' GOTO 40250
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40200 IF Y1$ = 'N' GOTO 40230
40210 PRINT 'INVALID RESPONSE. TRY AGAIN.'
40220 GOTO 40160
40230 H4 = 0
40240 GOTO 40260
40250 H4 = 1
40260 X6 = 0
40270 H3 = 1
40280 IF C5 = 62 GOTO 40310
40290 X7 = C5
40300 GOTO 40320
40310 X7 = A4
40320 FOR D6 = C5 TO X7
40330 IF H3 = 0 GOTO 40350
40340 GOSUB 15000
40350 GOSUB 16000
40360 IF H3 = 0 GOTO 40440
40370 FOR C6 = X4 TO X5
40380 IF B9(C6) = 0 GOTO 40430
40390 IF H4 = 0 GOTO 40420
40400 PRINT 'ON ';B4$(C8);' AT ';A9$(C6)
40410 X6 = 1
40420 GOSUB 17000
40430 NEXT C6
40440 NEXT D6
40450 IF H4 = 0 GOTO 40480
40460 IF H4 = 1 AND X6= 1 GOTO 40480
40470 PRINT 'NO APPOINTMENT HAD TO BE CANCELLED.'
40480 GOTO 39340
40481 GOSUB 38000
40482 PRINT 'IS THE INFORMATION CORRECT (Y/N)';
40483 INPUT Y1$
40484 IF Y1$ = 'Y' GOTO 40490
40485 IF Y1$ = 'N' GOTO 39030
40486 PRINT 'INVALID ENTRY. TRY AGAIN.'
40487 GOTO 40482
40490 RETURN
41000 PRINT
41010 IF I8 = 1 GOTO 41080
41020 PRINT 'FOLLOWING ARE DATES UNAVAILABLE FOR ANY APPOINTMENT:'
41030 FOR X9 = 1 TO (I8 - 1)
41040 X2 = B5(X9)
41050 PRINT X9;') ';B4$(X2)
41060 NEXT X9
41070 RETURN
41080 PRINT 'NO GENERALLY UNAVAILABLE DATES HAVE BEEN ENTERED AS YET.'
41090 GOTO 41070
42000 PRINT
42010 IF C9 = 3 OR I8 = 1 GOTO 42360
42020 PRINT 'WOULD YOU LIKE TO DELETE ANY EXISTING ENTRIES (Y/N)';
42030 INPUT Y1$
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42040 IF Y1$ = "Y" GOTO 42080
42050 IF Y1$ = "N" GOTO 42270
42060 PRINT "INVALID ENTRY. TRY AGAIN."
42070 GOTO 42020
42080 PRINT "ENTER NUMBER CORRESPONDING TO ENTRY YOU WISH TO DELETE";
42090 INPUT X3
42100 IF X3 >= 1 AND X3 <= I8 GOTO 42130
42110 PRINT "INVALID ENTRY. TRY AGAIN."
42120 GOTO 42080
42130 IF I8 <= F9 GOTO 42160
42140 X4 = F9 - 1
42150 GOTO 42170
42160 X4 = I8 - 1
42170 FOR X5 = X3 TO X4
42180 B5(X5) = B5 (X5 + 1)
42190 NEXT X5
42200 IF I8 <= F9 GOTO 42220
42210 B5(F9) = 0
42220 I8 = I8 - 1
42230 IF I8 = 1 GOTO 42360
42240 PRINT "AFTER THE DELETION:"
42250 GOSUB 41000
42260 GOTO 42020
42270 IF I8 <= F9 GOTO 42360
42280 PRINT "MAXIMUM NUMBER OF UNAVAILABLE DATES HAS  BEEN ENTERED. TO ADD"
42290 PRINT "A NEW ENTRY IT WILL BE NECESSARY TO DELETE A CURRENT ENTRY."
42300 PRINT "DO YOU WISH TO MAKE ANY DELETIONS (Y/N)";
42310 INPUT Y1$
42320 IF Y1$ = "Y" GOTO 42080
42330 IF Y1$ = "N" GOTO 43070
42340 PRINT "INVALID ENTRY. TRY AGAIN."
42350 GOTO 42300
42360 PRINT "DO YOU WISH TO ADD A NEW UNAVAILABLE DATE (Y/N)";
42370 INPUT Y1$
42380 IF Y1$ = "Y" GOTO 42420
42390 IF Y1$ = "N" GOTO 43070
42400 PRINT "INVALID ENTRY. TRY AGAIN."
42410 GOTO 42360
42420 PRINT "ENTER DATE AS MM/DD. BE SURE TO USE TWO DIGITS FOR BOTH"
42430 PRINT "MONTH AND DAY (EG. JANUARY 9TH WOULD BE 01/09).";
42440 INPUT C7$
42450 IF LEN(C7$) = 5 GOTO 42480
42460 PRINT "INVALID ENTRY. TRY AGAIN."
42470 GOTO 42420
42480 IF C7$ >= I7$ GOTO 42571
42490 PRINT "ENTERED DATE IS EITHER ERRONEOUS OR HAS PASSED. ONLY DATES"
42500 PRINT "MAY BE ENTERED WHICH ARE GREATER THAN OR EQUAL TO TODAY'S"
42510 PRINT "DATE (WHICH IS "; I7$;")."
42520 PRINT "DO YOU WISH TO ENTER ANOTHER DATE (Y/N)";
42530 INPUT Y1$
42540 IF Y1$ = "Y" GOTO 42420
42550 IF Y1$ = "N" GOTO 43070
42560 PRINT "INVALID ENTRY. TRY AGAIN."
42570 GOTO 42520
42571 PRINT "DATE IS "; C7$;" IS THAT CORRECT (Y/N)";
42572 INPUT Y1$
42573 IF Y1$ = "Y" GOTO 42580
42574 IF Y1$ = "N" GOTO 42520
42575 PRINT "INVALID RESPONSE. TRY AGAIN."
42576 GOTO 42571
42580 I9 = 1
42585 GOSUB 14000
42590 IF E2$ = "FOUND" GOTO 42630
42600 PRINT "ENTERED DATE IS EITHER ERRONEOUS OR IS NOT THE DATE OF AN"
42610 PRINT "APPOINTMENT DAY DURING THIS SEMESTER."
42620 GOTO 42520
42630 B5(I8) = C8
42640 I8 = I8 + 1
42650 IF C9 = 3 GOTO 43040
42660 PRINT "IT IS NOW NECESSARY TO CANCEL THOSE APPOINTMENTS ALREADY"
42670 PRINT "RECORDED ON THE NEWLY ENTERED DATE."
42680 PRINT "DO YOU WISH TO SEE A LISTING, FOR ALL APPOINTMENT TYPES, OF"
42690 PRINT "ANY APPOINTMENTS WHICH HAVE TO BE CANCELLED (Y/N)";
42700 INPUT Y1$
42710 IF Y1$ = "Y" GOTO 42770
42720 IF Y1$ = "N" GOTO 42750
42730 PRINT "INVALID ENTRY. TRY AGAIN."
42740 GOTO 42680
42750 H6 = 0
42760 GOTO 42800
42770 H6 = 1
42780 H5 = 1
42790 H4 = 1
42800 H3 = 1
42810 X4 = 0
42820 FOR D6 = 1 TO A4
42830 IF H3 = 0 GOTO 42850
42840 GOSUB 15000
42850 GOSUB 16000
42860 IF H3 = 0 GOTO 43005
42870 IF H6 = 1 GOTO 42900
42880 GOSUB 17000
42890 GOTO 43005
42900 FOR C6 = 1 TO H2
42910 IF B9(C6) = 0 GOTO 43000
42920 IF D6 <= (G2 - 1) GOTO 42950
42930 X3 = G2
42940 GOTO 42960
42950 X3 = D6
42960 PRINT "FOR "; D7$(X3)
42970 PRINT "ON "; B4$(C8);" AT "; A9$(C6)
42980 GOSUB 17000
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42990 X4 = 1
43000 NEXT C6
43005 NEXT D6
43010 IF H6 = 0 GOTO 43040
43020 IF X4 = 1 GOTO 43040
43030 PRINT "NO APPOINTMENT HAD TO BE CANCELLED."
43040 PRINT "AFTER THE ADDITION:"
43050 GOSUB 41000
43060 GOTO 42270
43070 RETURN
44000 PRINT
44005 K4 = 1
44010 J2$ = "FAILURE"
44020 I9 = 1
44025 GOSUB 14000
44030 IF E2$ = "FOUND" GOTO 44070
44040 PRINT "ENTERED DATE IS EITHER ERRONEOUS OR IS NOT THE DATE OF AN"
44050 PRINT "APPOINTMENT DAY DURING THIS SEMESTER."
44060 GOTO 44980
44070 PRINT "ENTERED DATE IS A ";D7$(H9)
44080 PRINT "IS THAT THE DAY YOU WANTED (Y/N)";
44090 INPUT Y1$
44100 IF Y1$ = "Y" GOTO 44140
44110 IF Y1$ = "N" GOTO 44980
44120 PRINT "INVALID RESPONSE. TRY AGAIN."
44130 GOTO 44070
44140 H8 = H9 + (C5 - 1) * K5
44150 IF D(H8,1) = 1 GOTO 44181
44160 PRINT D7$(C5)
44170 PRINT "IS NOT AVAILABLE ON ";D7$(H9)
44180 GOTO 44980
44181 GOSUB 34000
44182 PRINT "ENTER NUMBER OF THE HOUR YOU WANT";
44183 INPUT C6
44184 IF C6 >= 1 AND C6 <= H2 GOTO 44190
44185 PRINT "INVALID ENTRY. ENTER A NUMBER FROM 1 TO";H2
44186 GOTO 44182
44190 IF D(H8,(C6 + 1)) = 1 GOTO 44230
44200 PRINT D7$(C5)
44210 PRINT "IS NOT AVAILABLE ON ";D7$(H9);" AT ";A9$(C6)
44220 GOTO 44980
44230 IF I8 = 1 GOTO 44300
44240 FOR X1= 1 TO (I8 - 1)
44250 IF B5(X1) = C8 GOTO 44280
44260 NEXT X1
44270 GOTO 44300
44280 PRINT C7$;" IS UNAVAILABLE FOR ANY TYPE OF APPOINTMENT."
44290 GOTO 44980
44300 H8 = 1 + (C5 - 1) * I6
44310 FOR X1 = H8 TO (H8 + (I6 - 1))
44320 IF C(X1,1) = 0 GOTO 44560
44330 IF C(X1,1) = C8 GOTO 44360
44340 NEXT X1
44350 GOTO 44560
44360 IF C(X1,2) = 1 GOTO 44400
44370 IF C(X1,2) = 2 GOTO 44550
44380 IF C(X1,2) = 3 GOTO 44530
44390 IF C6 < 17 GOTO 44560
44400 PRINT D7$(C5)
44410 PRINT "HAS BEEN CANCELLED ON ";C7$;
44420 IF C(X1,2) = 1 GOTO 44510
44430 IF C(X1,2) = 2 GOTO 44490
44440 IF C(X1,2) = 3 GOTO 44470
44450 PRINT " FOR THE EVENING HOURS (5 TO 9)"
44460 GOTO 44980
44470 PRINT " FOR THE AFTERNOON HOURS (1 TO 5)"
44480 GOTO 44980
44490 PRINT " FOR THE MORNING HOURS (8 TO 12)"
44500 GOTO 44980
44510 PRINT " FOR ALL HOURS (8 AM TO 9 PM)"
44520 GOTO 44980
44530 IF C6 >= 9 AND C6 <= 16 GOTO 44400
44540 GOTO 44560
44550 IF C6 <= 8 GOTO 44400
44560 IF C5 = G2 GOTO 44590
44570 X4 = C5
44580 GOTO 44600
44590 X4 = A4
44600 X3 = C5
44610 H5 = 0
44620 H6 = 1
44630 X5 = 0
44640 IF C9 = 1 GOTO 44670
44650 PRINT "FOR ";D7$(C5)
44660 PRINT "ON ";B4$(C8);" AT ";A9$(C6)
44670 FOR D6 = X3 TO X4
44680 GOSUB 15000
44690 GOSUB 16000
44700 IF B9(C6) <> 0 GOTO 44710
44701 IF C9 = 2 GOTO 44850
44702 GOTO 44970
44710 X5 = 1
44720 GOSUB 17000
44730 IF C9 = 1 GOTO 44820
44740 PRINT "A TOTAL OF";D2;"OUT OF A MAX OF";D9(C5);"APPOINTMENTS AT THAT HR."
44750 IF C5 < (G2 - 1) GOTO 44850
44760 IF C5 > (G2 - 1) GOTO 44790
44770 PRINT "AT STATION 4"
44780 GOTO 44850
44790 PRINT "FOR ";D8$(I2)
44800 PRINT "AT STATION";D6 - (G2  - 1)
44810 GOTO 44850
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44820 IF D2 = D9(C5) GOTO 44850
44830 IF C5 < G2 GOTO 44970
44840 IF D5 = I2 GOTO 44970
44850 NEXT D6
44860 IF C9 = 1 GOTO 44890
44865 IF X5 = 0 GOTO 44940
44870 PRINT 'END OF LISTING'
44880 GOTO 44970
44890 PRINT 'ENTERED DATE AND TIME IS ALREADY CLOSED FOR YOUR '
44900 PRINT 'SELECTED APPOINTMENT TYPE.'
44910 GOTO 44980
44940 PRINT 'NO RECORDED APPOINTMENTS.'
44950 GOTO 44970
44970 J2$ = 'SUCCESS'
44980 RETURN
45000 PRINT
45010 K3 = 0
45020 GOSUB 13000
45030 PRINT 'ENTER THE NUMBER OF THE ONE FOR WHICH YOU WISH TO MAKE '
45040 PRINT 'AN APPOINTMENT. ENTER A ZERO WHEN FINISHED.';
45050 INPUT C5
45060 IF C5 = 0 GOTO 46010
45070 IF C5 >= 1 AND C5 <= G2 GOTO 45091
45080 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 0 TO';G2
45090 GOTO 45030
45091 IF D9(C5) > 0 GOTO 45100
45092 PRINT 'THAT APPOINTMENT TYPE IS NOT AVAILABLE THIS SEMESTER.'
45093 GOTO 46001
45100 IF C5 < G2 GOTO 45170
45110 PRINT 'FOR THE CHOSEN TYPE THERE ARE';G1;'VARIETIES.'
45111 FOR X1 = 1 TO G1
45112 PRINT X1;') ';D8$(X1)
45113 NEXT X1
45120 PRINT 'ENTER THE NUMBER OF THE ONE YOU WANT.';
45130 INPUT D5
45140 IF D5 >= 1 AND D5 <= G1 GOTO 45170
45150 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 1 TO';G1
45160 GOTO 45110
45170 PRINT 'ENTER THE DATE OF THE DESIRED APPOINTMENT USING THE FORMAT
45180 PRINT 'MM/DD BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY'
45190 PRINT '(EG. JANUARY 9TH WOULD BE 01/09).'
45200 PRINT 'THE FINAL DATE FOR ANY APPOINTMENT IS ';B4$(J1)
45210 PRINT 'TODAY'S DATE IS ';I7$
45220 PRINT 'ENTER YOUR DATE';
45230 INPUT C7$
45240 IF LEN(C7$) = 5 GOTO 45270
45250 PRINT 'INVALID DATE FORMAT. TRY AGAIN.'
45260 GOTO 45220
45270 IF C7$ >= I7$ GOTO 45410
45280 PRINT 'ENTERED DATE IS EITHER ERRONEOUS OR HAS ALREADY PASSED.'
45290 PRINT 'DO YOU WANT TO TRY AGAIN WITH A DIFFERENT DATE (Y/N)';
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45300 INPUT Y1$
45310 IF Y1$ = 'Y' GOTO 45170
45320 IF Y1$ = 'N' GOTO 46001
45330 PRINT 'INVALID RESPONSE. TRY AGAIN.'
45340 GOTO 45290
45410 GOSUB 44000
45420 IF J2$ = 'FAILURE' GOTO 45940
45430 IF D6 < G2 GOTO 45545
45440 FOR X1 = G2 TO A4
45441 IF B1(C2,X1) = 0 OR B1(C2,X1) = 99 GOTO 45500
45442 IF B1(C2,X1) < J5 GOTO 45500
45443 X2 = B1(C2,X1)
45444 X3 = B2(C2,X1)
45445 X4 = B3(C2, (X1 - (G2 - 1)))
45446 GOTO 45520
45500 NEXT X1
45510 GOTO 45720
45520 PRINT 'YOU ALREADY HAVE AN APPOINTMENT ON ';B4$(X2);' AT ';A9$(X3)
45530 PRINT 'FOR ';D8$(X4);' AT STATION';X1 - (G2 - 1)
45540 IF X2 = C8 AND X3 = C6 GOTO 45542
45541 GOTO 45605
45542 IF X4 = D5 GOTO 45940
45543 GOTO 45605
45545 IF B1(C2,D6) = 0 OR B1(C2,D6) = 99 GOTO 45720
45550 IF B1(C2,D6) <> C8 GOTO 45575
45555 IF B2(C2,D6) <> C6 GOTO 45575
45560 PRINT 'YOU ALREADY HAVE AN APPOINTMENT FOR THE'
45565 PRINT 'ENTERED DATE AND TIME.'
45570 GOTO 45940
45575 IF B1(C2,D6) < J5 GOTO 45720
45580 X1 = D6
45585 X2 = B1(C2,X1)
45590 X3 = B2(C2,X1)
45595 PRINT 'YOU ALREADY HAVE AN APPOINTMENT ON ';B4$(X2);' AT ';A9$(X3)
45600 PRINT
45605 PRINT 'DO YOU WANT TO REPLACE THE PREVIOUS APPOINTMENT WITH'
45610 PRINT 'WITH THE ONE JUST ENTERED (Y/N)';
45615 INPUT Y1$
45620 IF Y1$ = 'Y' GOTO 45640
45625 IF Y1$ = 'N' GOTO 45940
45630 PRINT 'INVALID RESPONSE. TRY AGAIN.'
45635 GOTO 45605
45640 IF (B1(C2,X1) - J5) > 1 GOTO 45700
45645 PRINT 'SINCE YOUR PREVIOUS APPOINTMENT WOULD HAVE TAKEN EFFECT'
45650 PRINT 'WITHIN ONE CLASS DAY FROM TODAY, PLEASE INFORM YOUR'
45655 PRINT 'INSTRUCTOR PERSONALLY ABOUT THIS CHANGE.'
45700 B1(C2,X1) = 0
45710 GOTO 45790
45720 PRINT 'DATE AND TIME ARE ACCEPTABLE FOR AN APPOINTMENT.'
45730 PRINT 'DO YOU WANT TO RECORD THE APPOINTMENT (Y/N)';
45740 INPUT Y1$
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45750 IF Y1$ = 'Y' GOTO 45790
45760 IF Y1$ = 'N' GOTO 45940
45770 PRINT 'INVALID RESPONSE. TRY AGAIN.'
45780 GOTO 45730
45790 B1(C2,D6) = C8
45800 B2(C2,D6) = C6
45810 IF C5 < 02 GOTO 45830
45820 B3(C2, (D6 - (02 - 1))) = D5
45830 PRINT 'AN APPOINTMENT HAS BEEN RECORDED FOR:'
45840 PRINT C1
45850 PRINT C1$
45860 PRINT 'FOR '!D7$(C5)
45870 PRINT 'ON '!B4$(C8)!' AT '!A9$(C6)
45880 IF C5 < 02 GOTO 45910
45890 PRINT 'FOR '!D8$(D5)!' AT STATION'!D6 - (02 - 1)
45900 GOTO 46001
45910 IF C5 < (02 - 1) GOTO 45000
45920 PRINT 'AT STATION 4'
45930 GOTO 45000
45940 PRINT 'DO YOU WANT TO TRY AGAIN FOR THE SAME APPOINTMENT TYPE WITH'
45950 PRINT 'A NEW DATE AND HOUR (Y/N)'!
45960 INPUT Y1$
45970 IF Y1$ = 'Y' GOTO 45170
45980 IF Y1$ = 'N' GOTO 46001
45990 PRINT 'INVALID RESPONSE. TRY AGAIN.'
46000 GOTO 45940
46001 PRINT 'DO YOU WANT TO TRY TO MAKE ANOTHER APPOINTMENT (Y/N)'!
46002 INPUT Y1$
46003 IF Y1$ = 'Y' GOTO 45000
46004 IF Y1$ = 'N' GOTO 46010
46005 PRINT 'INVALID RESPONSE. TRY AGAIN.'
46006 GOTO 46001
46010 RETURN
47000 PRINT
47010 K3 = 0
47020 GOSUB 13000
47030 PRINT 'ENTER THE NUMBER OF THE TYPE YOU ARE INTERESTED IN.'
47040 PRINT 'ENTER A ZERO WHEN FINISHED.'!
47050 INPUT C5
47055 IF C5 = 0 GOTO 47310
47060 IF C5 >= 1 AND C5 <= 02 GOTO 47090
47070 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 0 TO'!02
47080 GOTO 47030
47090 PRINT 'ENTER THE DATE DESIRED USING THE FORMAT MM/DD BEING SURE TO'
47100 PRINT 'USE TWO DIGITS FOR BOTH MONTH AND DAY (EG. JANUARY 9TH WOULD'
47110 PRINT 'BE 01/09). TODAY'S DATE IS '!I7$
47120 PRINT 'ENTER YOUR DATE'!
47130 INPUT C7$
47140 IF LEN(C7$) = 5 GOTO 47230
47150 PRINT 'INVALID DATE FORMAT. TRY AGAIN.'
47160 GOTO 47120
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47230 GOSUB 44000
47240 PRINT 'WOULD YOU LIKE TO TRY ANOTHER DATE AND HOUR FOR THE SAME'
47250 PRINT 'APPOINTMENT TYPE (Y/N)'!
47260 INPUT Y1$
47270 IF Y1$ = 'Y' GOTO 47090
47280 IF Y1$ = 'N' GOTO 47000
47290 PRINT 'INVALID RESPONSE. TRY AGAIN.'
47300 GOTO 47240
47310 RETURN
48000 PRINT
48010 PRINT 'YOU MAY HAVE A LISTING OF UP TO 5 APPOINTMENT DAYS AT A TIME'
48020 PRINT 'ENTER NUMBER OF DAYS YOU ARE INTERESTED IN (1 TO 5)'!
48030 INPUT X3
48040 IF X3 >= 1 AND X3 <= 5 GOTO 48070
48050 PRINT 'INVALID ENTRY. ENTER A NUMBER FROM 1 TO 5.'
48060 GOTO 48020
48070 PRINT 'ENTER STARTING DATE FOR THE LISTING USING THE FORMAT MM/DD'
48080 PRINT 'BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY (EG. '
48090 PRINT 'JANUARY 9TH WOULD BE 01/09). IF ENTERED DATE IS NOT AN '
48095 PRINT 'APPOINTMENT DATE THEN THE NEAREST EARLIER APPOINTMENT'
48100 PRINT 'DATE WILL BE USED.'
48110 PRINT 'ENTER STARTING DATE'!
48120 INPUT C7$
48130 IF LEN(C7$) = 5 GOTO 48160
48140 PRINT 'INVALID DATE FORMAT.ENTER 5 CHARACTERS IN FORM MM / DD.'
48150 GOTO 48110
48160 IF C7$ >= B4$(1) AND C7$ <= B4$(J1) GOTO 48260
48170 PRINT 'ENTERED DATE IS EITHER ERRONEOUS OR IS NOT WITHIN THE RANGE OF'
48180 PRINT 'DATES FOR THIS SEMESTER. FOR THIS SEMESTER THE STARTING DATE'
48190 PRINT 'FOR ANY APPOINTMENT IS '!B4$(1)!' AND THE FINAL '!B4$(J1)
48200 PRINT 'DO YOU WANT TO TRY AGAIN (Y/N)'!
48210 INPUT Y1$
48220 IF Y1$ = 'Y' GOTO 48070
48230 IF Y1$ = 'N' GOTO 48830
48240 PRINT 'INVALID RESPONSE. TRY AGAIN.'
48250 GOTO 48200
48260 IF C9 = 2 OR C7$ >= I7$ GOTO 48290
48270 PRINT 'ENTERED DATE HAS ALREADY PASSED. TODAY'S DATE IS '!I7$
48280 GOTO 48200
48290 I9 = 1
48300 GOSUB 14000
48310 IF E2$ = 'FOUND' GOTO 48370
48320 IF G8 <> 0 GOTO 48350
48330 X6 = 1
48340 GOTO 48380
48350 X6 = G8
48360 GOTO 48380
48370 X6 = C8
48380 H5 = 0
48390 H6 = 1
48400 H3 = 1
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48410 IF C5 < G2 GOTO 48440
48420 X5 = A4
48430 GOTO 48450
48440 X5 = C5
48450 X4 = C5
48460 X7 = 0
48470 FOR C8 = X6 TO (X6 + X3 - 1)
48480 IF C8 > J1 GOTO 48810
48490 FOR D6 = X4 TO X5
48500 IF H3 = 0 GOTO 48520
48510 GOSUB 15000
48520 GOSUB 16000
48530 IF H3 = 0 GOTO 48670
48540 X7 = 1
48550 FOR C6 = 1 TO H2
48560 IF B9(C6) = 0 GOTO 48660
48570 PRINT "ON "$B4$(C8)$" AT "$A9$(C6)
48580 IF C5 < G2 GOTO 48600
48590 PRINT "AT STATION"$D6 - (G2 - 1)
48595 GOTO 48620
48600 IF C5 < (G2 - 1) GOTO 48620
48610 PRINT "AT STATION 4"
48620 GOSUB 17000
48630 PRINT "A TOTAL OF"$D2$"OUT OF A MAX OF"$D9(C5)$"FOR THAT HOUR."
48640 IF C5 < G2 GOTO 48660
48650 PRINT "FOR "$D8$(I2)
48660 NEXT C6
48670 NEXT D6
48680 IF X7 = 1 GOTO 48700
48690 PRINT "THERE ARE NO RECORDED APPOINTMENTS ON "$B4$(C8)
48700 X7 = 0
48710 NEXT C8
48720 PRINT "END OF LISTING"
48730 IF C9 = 1 GOTO 48830
48740 PRINT "WOULD YOU LIKE TO SEE ANOTHER LISTING FOR THIS SAME"
48750 PRINT "APPOINTMENT TYPE (Y/N)"$
48760 INPUT Y1$
48770 IF Y1$ = "Y" GOTO 48000
48780 IF Y1$ = "N" GOTO 48830
48790 PRINT "INVALID RESPONSE. TRY AGAIN."
48800 GOTO 48740
48810 PRINT "ABOVE DATE IS FINAL APPOINTMENT DATE FOR SEMESTER."
48820 GOTO 48730
48830 RETURN
49000 PRINT
49010 K3 = 0
49020 GOSUB 13000
49030 PRINT "ENTER THE NUMBER OF  APPOINTMENT TYPE YOU WISH TO EXAMINE."
49040 PRINT "ENTER A ZERO WHEN FINISHED."
49050 INPUT C5
49060 IF C5 = 0 GOTO 49530
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49070 IF C5 >= 1 AND C5 <= G2 GOTO 49095
49080 PRINT "INVALID ENTRY. ENTER A NUMBER FROM 0 TO"$G2
49090 GOTO 49030
49095 IF D9(C5) > 0 GOTO 49100
49096 PRINT "THAT APPOINTMENT TYPE IS NOT AVAILABLE THIS SEMESTER."
49097 GOTO 49030
49100 IF C5 = G2 GOTO 49130
49110 X1 = C5
49120 GOTO 49140
49130 X1 = A4
49140 X2 = 0
49150 PRINT C1$
49160 PRINT "FOR "$D7$(C5)
49170 FOR D6 = C5 TO X1
49180 IF B1(C2,D6) = 0 GOTO 49490
49190 X2 = 1
49200 IF B1(C2,D6) = 99 GOTO 49440
49210 C8 = B1(C2,D6)
49220 C6 = B2(C2,D6)
49230 IF D6 <  G2 GOTO 49250
49240 D5 = B3(C2,(D6 - (G2 - 1)))
49250 PRINT "ON "$B4$(C8)$" AT "$A9$(C6)
49260 IF C5 < G2 - 1 GOTO 49320
49270 IF C5 = G2 GOTO 49300
49280 PRINT "AT STATION 4"
49290 GOTO 49310
49300 PRINT "FOR "$D8$(D5)$" AT STATION"$D6 - (G2 - 1)
49310 IF C9 =  2 OR J5 > C8 GOTO 49490
49320 PRINT "DO YOU WISH TO CANCEL THIS APPOINTMENT (Y/N)"$
49330 INPUT Y1$
49340 IF Y1$ = "Y"  GOTO 49380
49350 IF Y1$ = "N"  GOTO 49490
49360 PRINT "INVALID RESPONSE. TRY AGAIN."
49370 GOTO 49320
49380 IF (C8 - J5) > 1 GOTO 49420
49390 PRINT "SINCE THIS APPOINTMENT WAS TO HAVE COME DUE WITHIN ONE"
49400 PRINT "CLASS DAY, PLEASE INFORM YOUR INSTRUCTOR PERSONALLY ABOUT"
49410 PRINT "THIS CANCELLATION."
49420 B1(C2,D6) = 0
49430 GOTO 49490
49440 PRINT "LAST RECORDED APPOINTMENT HAS BEEN CANCELLED."
49450 IF D6 < G2 GOTO 49470
49460 PRINT "AT STATION"$D6 - (G2 - 1)
49470 IF C9 = 2 GOTO 49490
49480 B1(C2,D6) =0
49490 NEXT D6
49500 IF X2 <> 0 GOTO 49000
49510 PRINT "NO RECORDED APPOINTMENT."
49520 GOTO 49000
49530 RETURN
50000 PRINT
```

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51280 IF E2$ = 'FOUND' GOTO 51530
51290 IF G8 < G3 GOTO 51340
51300 PRINT 'ENTERED DATE IS MORE THAN 17 WEEKS FROM START DATE OF '¦B4$(1)
51310 PRINT 'THE DATE '¦B4$(G3)¦' IS THE LARGEST FINAL DATE WHICH CAN BE'
51320 PRINT 'USED WITH ABOVE STARTING DATE.'
51330 GOTO 51120
51340 PRINT 'ENTERED DATE IS NOT THE DATE OF AN APPOINTMENT DAY DURING'
51350 PRINT 'SEMESTER. IT IS BETWEEN FOLLOWING 2 VALID DATES:'
51360 PRINT B4$(G8)¦' AND '¦B4$(G9)
51370 PRINT 'WOULD YOU LIKE TO USE EITHER OF THOSE DATES AS THE NEW FINAL'
51380 PRINT 'APPOINTMENT DATE (Y/N)'¦
51390 INPUT Y1$
51400 IF Y1$ = 'Y' GOTO 51440
51410 IF Y1$ = 'N' GOTO 51120
51420 PRINT 'INVALID RESPONSE. TRY AGAIN.'
51430 GOTO 51370
51440 PRINT 'ENTER A 1 FOR THE FIRST OR A 2 FOR THE SECOND OF THE DATES'¦
51450 INPUT X1
51460 IF X1 = 1 GOTO 51520
51470 IF X1 = 2 GOTO 51500
51480 PRINT 'INVALID ENTRY. ENTER A 1 OR A 2.'
51490 GOTO 51440
51500 C8 = G9
51510 GOTO 51530
51520 C8 = G8
51530 X7 = J1
51535 J1 = C8
51640 PRINT 'NEW FINAL DATE IS '¦B4$(J1)
51650 IF H5 = 0 GOTO 52040
51660 PRINT 'IT IS NOW NECESSARY TO CANCEL ANY APPOINTMENTS WHICH MAY BE'
51670 PRINT 'ALREADY RECORDED ON DATES AFTER NEW FINAL DATE.'
51680 PRINT 'DO YOU WISH TO SEE A LISTING OF EACH OF THE APPOINTMENTS,'
51690 PRINT 'FOR ALL OF THE APPOINTMENT TYPES, WHICH ARE CANCELLED (Y/N)'¦
51700 INPUT Y1$
51710 IF Y1$ = 'Y' GOTO 51770
51720 IF Y1$ = 'N' GOTO 51750
51730 PRINT 'INVALID RESPONSE. TRY AGAIN.'
51740 GOTO 51680
51750 H6 = 0
51760 GOTO 51790
51770 H6 = 1
51780 H4 = 1
51790 H3 = 1
51800 X4 = 0
51805 X8 = C8
51810 FOR D6 = 1 TO A4
51815 FOR C8 = X8 TO X7
51820 IF H3 = 0 GOTO 51840
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50010 PRINT 'STARTING MONTH MUST BE ONE OF THE FOLLOWING: 1, 6 OR 8.'
50020 PRINT 'ENTER NUMBER(1, 6 OR 8)OF THE MONTH OF THE STARTING DATE'¦
50030 INPUT J3
50040 IF J3 = 1 GOTO 50090
50050 IF J3 = 6 GOTO 50090
50060 IF J3 = 8 GOTO 50090
50070 PRINT 'INVALID ENTRY. ENTER A 1 OR 6 OR 8.'
50080 GOTO 50020
50090 PRINT 'ENTER THE NUMBER OF THE FIRST MONDAY (1-31)'¦
50100 INPUT J4
50110 IF J4 > 0 GOTO 50140
50120 PRINT 'INVALID ENTRY. ENTER NUMBER FROM 1 TO 31.'
50130 GOTO 50090
50140 IF J4 <= B8(J3) GOTO 50170
50150 PRINT 'THERE ARE ONLY'¦B8(J3)¦'DAYS IN ENTERED MONTH'
50160 GOTO 50010
50170 GOSUB 12000
50180 IF C9 = 3 GOTO 50220
50190 PRINT 'ALL RECORDED DATA ON APPOINTMENTS, CANCELLATIONS FOR EACH'
50200 PRINT 'APPOINTMENT TYPE AND GENERALLY UNAVAILABLE DATES  IS NOW'
50210 PRINT 'BEING CLEARED.'
50220 GOSUB 28000
50230 RETURN
51000 PRINT
51010 PRINT 'THE FINAL DATE MUST BE WITHIN 17 WEEKS OF THE STARTING DATE'
51020 PRINT '(WHICH IS '¦B4$(1)¦' ). THE CURRENT FINAL DATE IS '¦B4$(J1)
51030 PRINT 'PLEASE ENTER DESIRED FINAL DATE IN SAME FORMAT AS ABOVE DATES'
51040 PRINT '(MM/DD) BEING SURE TO USE TWO DIGITS FOR BOTH MONTH AND DAY'
51050 PRINT '(EG JANUARY 9TH WOULD BE 01/09)'¦
51060 INPUT C7$
51070 IF LEN(C7$) = 5 GOTO 51100
51080 PRINT 'INVALID DATE FORMAT. ENTER 5 CHARACTERS MM / DD.'
51090 GOTO 51010
51100 IF C7$ > B4$(1) GOTO 51180
51110 PRINT 'FINAL DATE MUST BE GREATER THAN STARTING DATE.'
51120 PRINT 'DO YOU STILL WISH TO ENTER A FINAL DATE (Y/N)'¦
51130 INPUT Y1$
51140 IF Y1$ = 'Y' GOTO 51010
51150 IF Y1$ = 'N' GOTO 52040
51160 PRINT 'INVALID RESPONSE. TRY AGAIN.'
51170 GOTO 51120
51180 IF C7$ <> B4$(J1) GOTO 51210
51190 PRINT 'ENTERED FINAL DATE IS IDENTICAL WITH ONE ALREADY IN USE.'
51200 GOTO 51120
51210 IF C9 = 3 GOTO 51250
51220 IF C7$ > B4$(J1) GOTO 51250
51230 H5 = 1
51240 GOTO 51260
51250 H5 = 0
51260 I9 = 2
51270 GOSUB 14000
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51830 GOSUB 15000
51840 GOSUB 14000
51850 IF H3 = 0 GOTO 52000
51860 IF H6 = 1 GOTO 51890
51870 GOSUB 17000
51880 GOTO 52000
51890 FOR C6 = 1 TO H2
51900 IF B9(C6) = 0 GOTO 51990
51910 IF D6 <= (G2 - 1) GOTO 51940
51920 X3 = G2
51930 GOTO 51950
51940 X3 = D6
51950 PRINT "FOR "|D7$(X3)
51960 PRINT "ON "|B4$(C8)|" AT "|A9$(C6)
51970 GOSUB 17000
51980 X4 = 1
51990 NEXT C6
52000 NEXT C8
52005 NEXT D6
52010 IF H6 = 0 GOTO 52040
52020 IF X4 = 1 GOTO 52040
52030 PRINT "NO APPOINTMENT HAD TO BE CANCELLED."
52040 RETURN
53000 IF T = 1 GOTO 53040
53010 RESTORE#1
53020 MAT WRITE #1,A1,A2,A3,A5$,A6,A7$,B1,B2,B3,B4$,B5,B6$,B9,C,D,D7$,D8$,D9
53030 WRITE #1,I8,J1,E6,F5,F6,G4
53040 END
```